Timber Circles, Henge Monuments and Stone Circles: A reassessment of the currently accepted chronologies.

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Abstract

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Keywords: Timber circle, henge monument, stone circle, radiocarbon dating, relative dating, site chronologies, Neolithic, Bronze Age.

The sequence of timber circle - henge monument - stone circle is widely accepted. This is in spite of the reality that the datable evidence and contextual data upon which this series is based has seldom been subjected to any real form of critical evaluation. The aim of this research was to determine whether this order could still be deemed tenable in light of contemporary research and the continued advances that have been achieved relating to the application of radiocarbon dating. The findings of this study demonstrated that sufficient contextual data exists to enable phases of construction to be identified. However rarely did these data appear to support the currently accepted chronologies. Indeed more commonly they alluded to an alternative series, one that demonstrated how some individual site sequences may have been previously misinterpreted. This study has also proven how methodological and interpretative weaknesses, relating to the use of radiocarbon dating, have created a quantifiable degree of accuracy between individual radiocarbon determinations and their ability to be reliably associated with the event or act that they have been used to date. These findings have not only cast sufficient doubt upon the reliability of the currently accepted chronologies for these three monumental forms but have also alluded to the existence of a far more appropriate sequence that conforms to the overall conclusions of this review far more convincingly. Accordingly a new series of timber circle(s) - stone circle - henge monument is proposed by this study.

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Chapter 1

Aims & Objectives.

1.1: Aims

The principal aim of this research is to critically reassess the contextual data and datable evidence relating to a selected number of timber circle, henge monument and stone circle sites that are located throughout the British Isles (with the exception of Northern Ireland) in order to determine the validity of the currently accepted chronologies for these Prehistoric structures. The findings of this reassessment will be used to compile a corpus of data that clearly differentiates between reliable and none reliable data. This analysed body of evidence will ultimately define our current level of understanding of these three monumental forms and enable any future research to be placed into context.

1.2: Objectives

The aims of this research will be achieved by the sequential completion of the following objectives;

1. To undertake a review of the available literature to ascertain how timber circles, henge monuments and stone circles have been investigated, interpreted, categorised and dated by previous studies. (Methods: 1-2).
2. To compile a database of excavated sites from which a research sample can be established. (Methods: 3).

3. To undertake a reassessment of the contextual data generated by the excavation of the selected sites in order to ascertain whether any stratagraphical relationships between different phases of construction can be identified. (Methods: 4).
4. To define the types of artefacts and materials that have been used to date the initial constructional phases of the three monumental forms under investigation and interrogate the validity of the observable relationship between these samples and the dated event.
   (Methods: 4).

5. To calibrate or recalibrate all radiocarbon dates derived from the analysis of the materials recovered during excavation and assess how the limitations of radiocarbon dating may have affected the dating of the selected monuments. (Methods: 5 & 6).
6. To compile an unbiased synthesis of data based upon the findings of this research that either confirms or rejects the currently accepted chronologies for timber circles, henge monuments and stone circles (Methods: 7-9).

1.3: <u>Methods</u>

In order to complete the objectives set out in section (1.2) the following methods will be employed;

1. Primary literary sources which relate to the excavation and interpretation of timber circles, henge monuments and stone circles that are situated throughout the selected study area will be consulted to enable a database of relevant sites to be compiled. Information will be sought from sources such as excavation

reports, archaeological journals, sites and monuments records, published literature and institutions or individuals such as museums, universities or archaeologists where necessary.

2. Using the gathered information sites will be categorised by type, geographical region, excavation status, size, and radiocarbon results.

3. Between forty and fifty sites will be selected from the compiled database for analysis. These data will be compiled in the form of a site catalogue and will be located throughout the study area in order to enable a fair appraisal of the available data and allow the findings of the research to be placed in a national context and not be affected by regional variations.

4. The types of artefacts and materials, which have been found at timber circles, henge monuments and stone circles, will be investigated. The contextual data will then be analysed to assess whether they can be used to date identified phases of construction. The reliability of this data will then be ranked and displayed in a table that will highlight the differences in quality between the types of data that have previously been used to date these sites.

5. OxCal 4.1 radiocarbon calibration software has been downloaded from the University of Oxford Radiocarbon Accelerator Unit's website. To ensure this programme downloaded successfully onto my hard drive I sought the assistance of a qualified professional from the Department of Archaeological Sciences at Bradford University. Due to the ever increasing accuracy of the

radiocarbon calibration curve for the late fourth and first half of the third millennium all dates will be recalibrated to enable an accurate and up to date assessment of the data to be made.

6. In addition to the radiocarbon dates being recalibrated the severity of the inaccuracies that may be caused as a result of the degradation of the dated materials while in the buried environment will be considered. These data will be assessed by the interrogation of current literature and by seeking the advice of professionals within the Department of Archaeological Sciences at the University of Bradford.

7. The contextual data and stratagraphic sequences will be re-evaluated for each site selected for inclusion within this study. These data will be presented primarily in the form of a site catalogue. Fifteen composite sites will then be chosen and subjected to a more in depth assessment in order to determine the accuracy of the currently accepted interpretations of these sites.

8. All the data generated by this research will be evaluated to ascertain its usefulness with regards to formulating a conclusion on the validity of the currently accepted chronologies for timber circles, henge monuments and stone circles.

1.4: <u>The Archaeological Significance of This Study</u>

The chronologies for timber circles, henge monuments and stone circles are so widely accepted within archaeological theory and literature that few attempts have been made to interrogate their validity. However a review of the literature relating to the excavation, analysis and interpretation of these three monumental forms highlights several inconsistencies relating to the datable evidence and contextual data that may call into question the accuracy of these chronologies. For example continued methodological and interpretive weaknesses relating to the use of radiocarbon dating, such as samples being dated even though they have no observable relationship with the event or act they have been used to date (Waterbolk 1971, 15: Garwood 1999, 145: Gibson 2005, 59-80), have made the dating of many sites impossible.

When this issue is considered in addition to the known limitations of radiocarbon dating such as the Neolithic plateau in the calibration curve (Harding 2003, 10-11), age-at-death-offsets (Bowman 1990, 15), contaminated samples (Burleigh 1971, 226-227) and the fact that many sites were excavated prior to the introduction of radiocarbon dating the reliability of numerous dated samples remains clearly questionable (Burl 2000, 33-38: Gibson 2000, 4550: Harding 2003, 10-22). Equally the contextual data for many sites is also often unable to substantiate currently accepted sequences. This is mainly due to the fact that stratagraphical relationships between phases of construction are often insufficiently preserved (Gibson 2000, 34). Therefore at sites such as Balfarg where natural erosion and ploughing were observed to have destroyed many of the henges internal features (Mercer 1981), the accurate identification of any interactions between constructed features during excavation would have been improbable. In addition it has also been proven that site sequences have often be misinterpreted, like at North Mains where Barclay misinterpreted the stratigraphy of the site believing that the class II henge predated the erection of the two timber circles (Barclay 1983; Gibson 2000, 36-37).

Currently the lack of any critical analysis of these data has enabled a range of inaccuracies to remain within the archaeological record. This lack of scrutiny provides an undeniable requirement for the aims of this research to be achieved in order to ensure that the data within the archaeological record is correct. Contemporary reassessments of datable materials, such as the cremated bone recovered from beneath the henge bank at North Mains (Sheridan 2002), have significantly enhanced our knowledge and understanding of these monuments and proved that continued interrogation of excavated materials is still a worthwhile exercise. Therefore a contemporary review of the literary database may also uncover new evidence that can assist in ultimately determining whether the currently accepted chronologies for these monuments are indeed still tenable. Should this study be unable to identify any new data it will at least create a database of reliable dates that will provide future researchers with a more accurate corpus of data. The need for a study such as this has been proposed by several accomplished scholars who have suggested that the true nature of these monuments will never be understood until more accurate chronologies can be established (Harding 2003, 11).

Chapter 2

Literature Review.

2.1: Literature Review

Timber circles, henge monuments and stone circles have been the focus of numerous archaeological investigations (Gibson 2004, 70), and attempts to categorise them based upon the common architectural traits they display (Harding & Lee 1987, 11). Such studies have demonstrated that these three monumental forms all share a common history with one another as timber circles, henge monuments and stone circles occur not only as standalone structures but have also been proven (through excavation) to form individual elements of composite sites. Arguably it was the existence of such composite sites which later provided the catalyst for the theory that suggested how all three types of structure were in fact variants of the same monumental form (Kendrick 1932, 83).

It was not until 1932 that the term henge was first used by Kendrick (in his corpus focused upon the archaeology of England and Wales) to describe the earthworks surrounding Stonehenge and Avebury and a series of ceremonial sites, i.e. 'temples' or 'meeting places' that were not burial-places (Kendrick 1932, 83). This all-encompassing term of 'henge' duly included empty earthen rings and stone circles (Kendrick 1932, 83) and arguably would have also included stand-alone timber circles had any notable examples been discovered prior to this point in time. The word “henge” itself (which means “hang”) (Harding & Lee 1987, 1) is taken from the site of Stonehenge and was only used by Kendrick for convenience as the first two sites discussed in his corpus were those of Stonehenge and Woodhenge, the second being named after the former.

The origin of the term henge is uncertain; however it is possibly a reference to the way in which the lintels at Stonehenge seem to hang in the air or the way that the stones take the appearance of a gallows (Harding & Lee 1987, 1). Even though the term henge became quickly absorbed within the archaeological literature it was arguably the excavation of sites such as Woodhenge, where timber circles were discovered for the first time (Cunnington 1929), and later Arminghall (Clark 1936) that truly kick-started the study of these monuments outside the mainstream interest of the more famous composite stone and earthen ring sites of Avebury and Stonehenge. Nevertheless the loose terminology and the placement of all three monumental forms and their various guises into one category meant that future studies were regularly embroiled in a continuing discussion about what actually constituted a henge monument.

Clark’s 1936 corpus for example, which recorded the findings of his excavations at Arminghall, included a discussion focused upon how the monuments grouped together within the henge class differed (Clark 1936). Clark discussed the configuration of the henge bank and ditch and their relative internal features, and after reviewing sites throughout Britain he increased the number of accepted henge sites from Kendrick's initial seven into double figures (Clark 1936). In comparison the Piggotts in their 1939 paper sought to look at similarities within the henge class and by doing so created typological subdivisions (Class I and Class II) that were based upon the number of entrances a site had and to a lesser extent the orientation of the monuments (Piggott & Piggott 1939). The Piggott's' thesis also made direct contradictions to some of the suggestions proposed by Clark. For example Clark omitted the site of the Sanctuary, as the rings of timbers and stone did not have an enclosing ditch and bank, whereas the Piggotts suggested that even without such an essential architectural feature the Sanctuary was indeed a henge (Piggott & Piggott 1939, 194), a statement that reflected the definition of a henge originally put forward by Kendrick six years earlier (Kendrick 1932, 83).

Indeed a definitive definition of what constituted a henge monument was not established until 1951 when Atkinson proposed within a report detailing his excavations at Dorchester that henge monuments should have an internal ditch with an external bank and that freestanding circles of posts or stones should be considered separate to the idea of henges (Atkinson 1951, 80). Such a distinction facilitated the creation of two separate monumental forms that of timber and stone circles within the archaeological literature as rarely would these three structures be considered as one and the same entity again. Nevertheless Atkinson could still not identify sufficient architectural similarities between all 38 sites to enable them to be reliably categorised under the two existing headings.

Therefore he created a new sub division (Class IIA), to incorporate constructions that have a bank encircled by both an internal and external ditch (Atkinson 1951). Despite Atkinson's definition of a henge becoming widely accepted, it was still regarded by some as a convenient archaeological invention to describe certain types of Prehistoric monument (Tratman 1967, 112). Accordingly, attached to his report on the Priddy circles Tratman duly suggested that categorising henges based upon architectural similarities was futile owing to each site possessing its own peculiarities to the extent that it is almost a general rule to say that each henge is unique in some respect or other (Tratman 1967, 112).

Tratman increased the number of henge sites in Britain by a further 15 from that of Atkinson, a figure which was soon raised to 78 as a result of Aubrey Burl's 1970 corpus that focused upon the internal features and regional groupings of henges (Burl 1970). Burl investigated the variety of structures that had been uncovered within the confines of many henge monuments and suggested that these may in fact be used diagnostically to devise chronologies and identify regional groupings within the henge class (Burl 1970). Burl rejected Clark's theory that henge monuments contained central features of wood or stone, and suggested that circle henges were indeed foreign to the original idea of these structures. This was due to the fact that if internal constructions were considered an integral architectural trait then only 19 of the 78 sites identified by Burl could have been regarded as henges. The identification of this anomaly drew a clear line of distinction once more between henges, timber circles and stone circles and resulted in Burl suggesting that henges should be defined in the majority of cases by their bank and entrance or entrances

(Burl 1970, 4). Consequently Burl introduced the classification of class IA to identify sites that have a single entrance and an internal and external ditch (Burl 1970).

Unquestionably, examination of the links between rings of posts and stones that were enclosed within the confines of some henge monuments was re-ignited by Wainwright's large scale excavations at the sites of Marden, Mount Pleasant and Durrington Walls between 1966 and 1971 (Wainwright 1971; 1979 & Wainwright & Longworth 1971). The findings of Wainwright's excavations proved invaluable as they were able to demonstrate beyond doubt that these sites were all multiphase complexes that consisted of a variety of structures which were either abandoned and replaced or modernised over a prolonged period of time. More importantly for the study area as a whole they also enabled direct comparisons to be made between architecturally similar monuments that were excavated using the same methodology which ultimately generated interest in the large-scale Wessex henges outside the normal isolated study area of Avebury (Wainwright 1990).

Nevertheless despite the continued increase in the volume of information within the archaeological record the three main questions first posed by Kendrick still remained unanswered, What actually constitutes a henge?, How old are they? and What were they used for? As a result attempts to identify an all-encompassing categorisation for henge monuments continued at pace. Catherall sought to define sites based upon their internal features (Catherall 1971) and therefore maintained the momentum that was gathering once again behind the assumption that timber and stone circles were fundamental to the henge phenomenon. However

Catherall's categorization was so complex, consisting of six categories with an additional ten hybrid categories, that it would have been untenable to adopt such a classification (Watson 2004).

The following decade saw the excavation of a series of important composite sites, Balfarg (Mercer 1981), North Mains (Barclay 1983) and the Milfield complex (Harding 1981) to name but three sites which contributed a great deal of datable and stratigraphic evidence to the record. New definitions of what constituted a henge took much of this data into consideration and as such the likes of Clare opted for the age old approach that combined internal features with external earthworks (Clare 1986 & 1987). Nevertheless like Catherall's approach Clare focused heavily upon the variability within the henge class. Such a categorisation of these structures was far too complex and therefore restricted its ability to be applied to all sites on a national level.

It was not until the landmark publication by Harding and Lee in 1987 that a complete corpus of every known or suspected henge monument was compiled (Harding &Lee 1987). This study made no attempt at interpretation, but merely brought together information from previous studies and highlighted important data about each site on an individual basis. The fact that this corpus was presented as a record as opposed to an investigation made the findings of this study unique and invaluable as it truly highlighted the variety of constructions that have been classified within the henge class and demonstrated that it would be impossible to create an all-encompassing definition that could incorporate all the sites noted within this corpus.

Despite the continued excavation of stand-alone timber and stone circle structures, few sought to interrogate the currency or function of these two monumental forms. Arguably this was a consequence of the fact that it had become entrenched within archaeological thought that rings of timber and stone were largely integral to henge monument design. There are however two notable exceptions to this general trend that sought to investigate all aspects of stone and timber circles as separate classes of monuments whether they laid within the confines of a henge monument or not. Burl defined and discussed the use of stone circles in 1976 and 2000 in great detail (Burl 1976; 2000), and a similar work by Gibson brought together an extensive corpus relating to timber circles firstly in 1994 as an appendix to his report on the excavations of Sarn-y-bryn-caled (Gibson 1994) and secondly as a definitive corpus in 2000 & 2005 (Gibson 2005).

Nevertheless it is important to note that even though Burl's corpus focused primarily upon the study of stone circles it highlighted how these structures are intrinsically linked. This is due to the fact that much of the data discussed by Burl actually originated from contexts associated directly with henge monuments, to the extent that many of the radiocarbon determinations noted throughout his corpus were actually recovered from the ditches and beneath the banks of henge monuments as opposed to any feature directly associated with a stone circle (Burl 2000, 376-377).

More recently excavations at sites such as Durrington Walls (Parker Pearson 2007) and Broomend of Crichie (Bradley 2011) have sought a new approach. These two studies in particular have attempted to determine the origins and functions of these sites and attempted to understand how they once interacted with other contemporary monuments within their environs. Such changes in methodology have coinciding with a return to attempts at answering the age old questions associated with these monuments that were noted above, Gibson's paper questioning whether henge monuments were ghost traps (Gibson 2008) or his attempts to determine the primacy of one structure over another at Dyffryn Lane (Gibson 2011) being notable examples. Nevertheless such data along with that being generated by further programmes of reassessment and investigation of sites such as Llandegai (Lynch & Musson 2004) and the Stones of Stenness (Challands, Edmonds & Richards 2005) have still ultimately been unable to amend the currently accepted definition of timber circles, henge monuments and stone circles that we are presented with today.

Henges are defined as a circular or oval area which may contain settings of posts or stones that are enclosed by a ditch and external bank, with one or opposing entrances (Harding 2003, 12: O'Brien 2004, 323). However there are three henge forms that do not comply with this description these are the Wessex and Class IA and IIA henges. This is due to the fact that the Wessex henges have four entrances and Class IA and IIA have banks that are enclosed by both an internal and external ditch (Harding 2003, 38: Watson 2004, 83-84). Timber circles are defined as a series of posts that were erected into a circular or oval format, which varied in complexity from single and double rings of posts to multiple concentric circles of timbers. These occur as both monuments in their own right and in conjunction with other constructions (Gibson 1999, 78). Stone circles were also built as monuments in their own right and in some cases were used as a final addition to pre-existing monuments. They consisted of both single and multiple rings of undressed stone that were arranged into circular or oval formats. The areas enclosed by the stones varied considerably as did the size of the stones used to construct them (Burl 2000, 43-63).

It is important to note that despite the numerous excavations of stand-alone structures contemporary theory still suggests that rings of posts and stones are integral to the idea of henge monuments to the extent that the definition of each of the three monumental forms under discussion is inextricably linked to one another (See Burl 2000 for example). The unwillingness or inability to break the links between timber circles, henge monuments and stone circles arguably explains why the identification of the origins of these monuments has remained so elusive. Theories relating to the origins of these monuments have already been summarised elsewhere (Harding & Lee 1987; Harding 2003; Gibson 2005; Burl 2000 being notable examples), consequently there is no need to replicate them here, however the origins of these three individual structures will be returned to in chapter 7 section 7.3 where the data generated by this study will be used to examine the validity of the currently excepted theories.

Perhaps, the inability to disconnect these structures from one another owes much to the reality that prior to the 1950's and the introduction of radiocarbon dating scholars were unable to accurately establish any reliable calendrical date ranges for the initial construction, utilisation and ultimate abandonment of these three monumental forms. For example prior to the 1950's scholars like John Aubrey in 1663 could only speculate that monuments such as Avebury were Prehistoric (Burl

2002, 61). Such uncertainty continued for centuries, indeed the age of Avebury was still being questioned as late as 1849 by Herbert who suggested after a review of historic writings that Avebury had been built after the Roman occupation (Burl 2002, 61).

The ‘radiocarbon revolution’ (Renfrew 1973), enabled scholars for the first time to confirm beyond reasonable doubt that these monuments did indeed have a currency within Prehistory and also facilitated the establishment of site and inter-site chronologies. The fact that organic materials (that were often recovered from these sites such as charcoal and bone) could now be dated greatly enhanced understanding of these structures. Nevertheless its continued misuse with regards to which samples were selected for dating (Kinnes & Thorpe 1986), has inadvertently assisted in the creation of a chronological sequence that is still open to a considerable amount of criticism. This is mainly due to the fact that care has not always been taken to ensure that there was an identifiable relationship between dated samples and the constructions they have been used to date (Gibson 2000, 45). As a result the existing date lists for timber circles, henge monuments and stone circles are littered with determinations that are unreliable and in many cases irrelevant (Garwood 1999, 147-148). **NB:** For the purposes of this study all radiocarbon determinations have been recalibrated to 2 sigma (95.4%) accuracy using OxCal 4.1 and will be presented as continuous ranges within the text. A table of all calibrated dates and un-calibrated dates used within this study can be found in Appendix II.

For example during the 1977 excavation at the site of Condicote two samples recovered from the henge ditch were subjected to radiocarbon analysis. These included a mixed charcoal sample of hawthorn, hazel and alder (HAR-3064: *circa* 2431-1896BC) from the early secondary fill and (HAR-3067: *circa* 2396-1756BC) which was also a sample of oak charcoal from the secondary silts in the layers above (HAR-3064) (Saville 1983). Despite the reality that these dated samples clearly had no discernable relationship with the initial excavation of the henge ditch at Condicote the dates generated by radiocarbon analysis of these samples have become established within the archaeological record.

The reality that such samples have often been considered alongside those generated by the analysis of short life materials, such as bone or antler, recovered from secure contexts that have a direct association with the architectural feature that they have been used to date has resulted in the accuracy of the date lists for these monuments remaining open to interpretation. This fact is illustrated by the likes of (Harding 2006, 14-15) where the aforementioned Condicote sample of (HAR-3064: *circa* 2431-1896BC) is considered to be directly comparable to (BM-645: *circa* 2285-2025BC), a sample of an antler pick recovered from the base of the henge ditch at Mount Pleasant (Wainwright 1979).

The advantages of radiocarbon dating are well documented, however even this method has its limitations. For example the antler picks recovered from the enclosure ditch at Marden (Wainwright 1971, 171-175), may have been affected by humic acid contamination (Gillespie 1989: Garwood 1999, 149). Awareness of such issues can render them irrelevant, however inaccuracies may still be present within the date lists for these monuments owing to the fact that many samples were analysed prior to radiocarbon dating becoming a fully developed technique (Garwood 1999, 149). Nevertheless arguably the biggest technical limitation of radiocarbon dating is that within the calibrated radiocarbon chronology of the late fourth and first half of the third millennium BC exist a series of plateaus. These plateaus limit the accuracy of radiocarbon dating as analysed samples that fall within their boundaries produce a date range that at best spans several centuries (Harding 2003, 10-11). Ultimately this makes the use of radiocarbon analysis in isolation implausible when dating the three monuments in question as it is virtually impossible to create chronological sequences.

In addition the post excavation analysis of excavated materials has highlighted that in some instances a number of samples may have been of considerable age prior to being deposited within the confines of these monuments. Evidence generated by the examination of an ox skull from the site of Stonehenge for example suggests that it may have been retained for several years prior to being deposited within the henge ditch (Serjeantson 1995, 442). Such evidence highlights that the dating of isolated samples is often insufficient to date the initial act of construction to the extent that it is clear that the true accuracy of any radiocarbon determination can only be achieved when it can be compared to dated comparable materials from similar contexts.

Animal remains are not the only material affected by such factors. It has been suggested that ceramics such as Grooved Ware (which is often associated with timber circles sites) may also have been retained or curated for prolonged periods of time prior to being deposited (Garwood 1999, 148). This is due to the fact that this particular ceramic form has often been recovered in a fragmentary condition from a variety of contexts including structured deposition in pits and the post-holes of timber circles (Gibson 1999). If this is indeed the case then the true age of this material cannot be determined, as the length of time that they have been retained for prior to being deposited within the confines of these monuments will never be known. Supporting evidence for this hypothesis is demonstrated by the reality that some sherds of Grooved Ware had holes drilled through them while other pieces show clear signs that they had been repaired (Cleal 1988).

The lack of critical evaluation of the date lists and chronologies for timber circles, henge monuments and in particular stone circles has resulted in the true age and currency of these three monumental forms remaining ambiguous. The importance of failing to eradicate poor methodological practises and interpretive weaknesses while utilising radiocarbon dating have often been highlighted (Waterbolk 1971: Kinnes & Thorpe 1986: Whittle 1988, 12-36: Garwood 1999). Nevertheless in spite of such warnings few have sought to rectify these short comings. Arguably this is a consequence of the reality that if such principals, regarding the selection and interpretation of samples, were adhered too then fundamental changes would need to be adopted throughout the field of archaeology as a whole which would have ultimately resulted in many of the sites considered by this study (Appendix III) yielding no samples suitable for radiocarbon analysis.

Studies that have sought to eradicate such methodological practices and interpretive weaknesses have had considerable success, Kinnes's study carried out on the radiocarbon dates and chronological sequences of British Beakers (Kinnes *et al*. 1991) and Sheridan's recent study of the same ceramic form (Sheridan 2007) being two noteworthy examples. It has been noted that until a similar study is carried out upon the data associated with timber circles, henge monuments and stone circles then a true understanding of these three structures will remain unachievable (Harding 2003, 10-12). Despite these problems, radiocarbon dating (when used correctly) is still the most productive method of generating chronologies for the currency of these three monumental forms (Gibson 2000, 45).

For example radiocarbon dating has proven essential in not only being able to provide calendrical date ranges for these three monuments but it has also been an essential tool in determining individual site chronologies (Gibson 2000, 45). At the site of North Mains analysis of cremated remains found sealed beneath the bank of the henge (GrA-24007: *circa* 2196-1920BC) was able to provide a *terminus post quem* for the construction of the henge (Sheridan 2002). When this data was compared to (GU-1354) which was a sample of oak charcoal from a post-hole of timber circle (A) and dated to the period *circa* 2873-2351BC it highlighted that there may have been in excess of 200-900 years difference between the construction of timber circle (A) and the surrounding henge at North Mains (Ashmore *et al.* 1997).

Advances in the technique of radiocarbon dating have had a great impact upon our understanding of timber circles, henge monuments and stone circles. Equally, reassessment of the relative dating sequences of many sites is also constantly questioning the accepted chronologies. Again at the site of North Mains the initial interpretation of the site during excavation concluded that timber circle (A) was predated by the construction of the henge monument (Barclay 1983, 180). However after a later reassessment by Gibson highlighted the fact that the post-ramps used to erect the timber circle had been cut by the creation of the later henge ditch this interpretation was reversed (Barclay 2005: Gibson 2000, 36-37). Similar observations have been made at comparable sites such as Woodhenge where the postholes of the outer ring are located in very close proximity to the henge ditch. Such reoccurring evidence would appear to support the revised sequence for North Mains (Pollard 1995, 142: Gibson 2004, 75).

Nevertheless at many sites like the large Wessex henge of Mount Pleasant such interactions between constructed features are rarely identifiable. The timber circles at Mount Pleasant are indeed enclosed by a henge bank and ditch (Wainwright 1979), however due to the large scale of this site no stratigraphical relationships between the timber circles and the surrounding earthworks could be identified during excavation (Gibson 2000, 34). When such restrictions are coupled with the limitations of radiocarbon dating (already highlighted above) it makes it difficult to ascertain which monument was the primary construction at many sites. Despite this reality theories postulating chronological sequences that can be applied universally have continued to be forthcoming.

Burl for example suggested that at sites where henges are found to enclose a stone circle the stone circle was always added to the centre of the henge as a later addition (Burl 2000, 285). Burl believed that this was a consequence of the fact that henges were in fact early prototypes for stone circles and as a consequence stone circles will always postdate the construction of their encircling henge when found on the same site (Burl 2000, 285). In comparison more recent studies have proposed that where timber circles and henge monuments are found to occupy the same area then the timber circle is always the primary construction (Gibson 2004, 75). Nevertheless as highlighted above there are numerous factors that may restrict our ability to apply such sequences to all sites universally owing to the reality that future studies and/or discoveries may render such statements invalid. Indeed it is the validity of such statements that this study intends to clarify throughout the remainder of this corpus.

In many cases statements such as those highlighted above, regarding the chronologies of these monuments, have been based upon the currently available date. These data have been subjected to very little critical evaluation, which as a consequence has led to them being littered with unreliable data and determinations that have at best a questionable relationship with the abandonment or secondary reuse of some sites let alone their initial construction or occupation. If, like theories relating to henge categorisation, datable evidence was superseded by later studies the need for such critical evaluation would be less important, however inaccurate datable evidence is still being presented alongside more reliable dates in contemporary studies. For example Harding suggests in his 2006 edition of "Henge Monuments of the British Isles" that even though there are currently over 100 radiocarbon determinations for henges only 32 of these date the initial construction of the henge (Harding 2006, 10), Gibson suggests that there are 34 reliable dates for timber circles (Gibson 2005) and Burl proposes an entire appendix of reliable dates for stone circles (Burl 2000).

A review of Harding's group highlights flaws in the reliability of these dates. For example Harding presents dates derived from Balfarg Riding School (GU-1670: *circa* 3335-2916BC) and (GU-1904: *circa* 3327-2896BC) respectively as being related to the initial construction of the henge. Nevertheless analysis of the excavation report by Barclay & Russell-White (1993) shows that (GU-1670) and (GU-1904) were in fact from the secondary silts of the henge ditch and therefore at best can only provide a elongated *terminus ante quem* for the construction of the henge. Indeed (GU-1904) was in fact a mixed charcoal sample of alder, birch and hazel which makes any date derived from the analysis of this sample even less reliable (Ashmore 1999). Similarly Gibson's list relating to timber circles contains dates such as (GU-2316) which is a mixed charcoal sample of oak, hazel and alder charcoal from a post-hole from timber circle 1 at Machrie Moor 1 (Gibson 2005, 63; Haggarty 1991, 63). While Burl's list has been subjected to even less critical evaluation and contains dates such as (GU-1296: *circa* 4316-3377BC), which was a sample of oak charcoal from stone-hole 8, of Temple Wood (North). This dated sample may be a piece of surviving heartwood from the earlier timber circle or equally residual material that became incorporated into the stone hole and as such is likely to be completely unrelated to the initial construction of the stone circle (Scott 1988; Burl 2000).

The data and evidence discussed above has led the overwhelming majority of studies (both historic and contemporary) to arrive at the same conclusion with regards to the chronologies of the three monuments in question. It is clear that the findings of most studies would agree with the basic premise that at composite sites timber circles pre-date henge monuments which in turn pre-date stone circles. Nevertheless a review of the archaeological evidence itself that has been put forward in support of this sequence appears far from conclusive when subjected to closer inspection. This is a consequence of the reality that in the majority of cases it is clear that the primacy of one monumental form over another can only be inferred *via* interpretation of the contextual data, as few stratigraphic interactions between constructed features are known to exist. When this fact is considered in conjunction with the reality that the date list for many of these sites are based upon often unreliable data the current chronology of timber circle – henge monument – stone circle looks far less reliable than is often stated within the literature. The reliability of the evidence and data used to support this sequence will be fully investigated later in this study in Chapter 6, Appendix I and Appendix III).

The need to continually review the data held within the archaeological record relating to the three monumental forms in question (and has been undertaken here) is highlighted by the re-evaluation of Barclay's initial interpretation of the site chronology for North Mains (Barclay 1983, 180) by Gibson (Gibson 2000, 36-37). A review of these data shows how our understanding of site chronologies can be improved by reviewing existing evidence using the enhanced knowledge that has been gained since a site was initially excavated. As a consequence the need to eradicate these data, streamline the date lists and confirm individual site chronologies to highlight mistakes that have been made during the initial interpretation of contextual data using methods and structures set out by scholars such as Waterbolk *et al*. (1971) is now unquestionable. Such reviews have been undertaken by many involved in the study of other aspects of Prehistory such as Garwood's study of Grooved Ware (Garwood 1999) and Gibson & Kinnes's review of Peterborough Ware (Gibson & Kinnes1997) and have resulted in positive outcomes. It is therefore reasonable to conclude that the aims set out for this study (**1.1**) will have far reaching implications upon the study of timber circles, henge monuments and stone circles as it could provide valuable data that may be able to unlock unknown information relating to these three monumental forms.

Chapter 3

A Critical Review of the Datable Evidence.

3.1: Introduction

Ever since its introduction in the 1950's, radiocarbon dating has been extensively and in many cases exclusively used to establish the chronologies and currencies of the three monumental forms under investigation (Burl 2000, 33-38: Gibson 2000, 45-50: Harding 2003, 10-22). Despite the fact that there are several technical issues relating to the calibration of determinations that still need to be overcome, the abilities of radiocarbon dating to accurately date the death of organic materials has remained unquestionable. Nevertheless the dating of a particular archaeological event (rather than the death of an organism) relies upon the death of the dated material/event lying close together; therefore quantifying the contextual integrity of any analysed sample is essential. If good integrity is not maintained, then the *archaeological* accuracy of radiocarbon dating is significantly diminished (Waterbolk 1971, 15).

Equally poor methodological practices and interpretative weaknesses relating to the selection of datable materials during excavation can also considerably lessen the effectiveness of the technique (Garwood 1999, 145). In most cases excavations of these three types of monument rarely generate any identifiable material culture that could be dated typologically and in turn compared to more established radiocarbon chronologies (Waterbolk 1971, 15). As a consequence the need to review the reliability of the radiocarbon data relating to timber circles, henge monuments and stone circles to ensure its accuracy is essential if future studies are to be based upon reliable data. Several studies have highlighted the impact that these poor working practices have had, not only on the study of these three monumental forms, but on the field of archaeology as a whole (Waterbolk 1971: Kinnes *et al*. 1982, 209: Kinnes & Thorpe 1986: Garwood 1999) however their recommendations have often been ignored.

The purpose of this chapter is to review the radiocarbon database relating to timber circles, henge monuments and stone circle sites in order to ascertain to what extent the limitations of radiocarbon dating and poor sampling strategies may have had upon the reliability of the currently accepted chronologies. Initially the main technical issues that can affect the accuracy of radiocarbon dating will be outlined (3.2), secondly the problems associated with calculating age-at-death off sets will be summarised (3.3) and finally the main methodological and interpretative weaknesses relating to the selection of datable samples will be discussed (3.4).

3.2: <u>Technical Issues</u>

Despite the accepted reliability of radiocarbon dating, there are still some technical limitations that are known to have a detrimental effect upon the accuracy of any dated sample that derives from a Prehistoric context. The main drawback of radiocarbon dating is that there currently exists a series of plateaus in the calibrated radiocarbon chronology of the late fourth and first half of the third millennium BC (Harding 2003, 10-11; Brindley 1999b, 30). This is due to the fact that dated materials that fall within the parameters of these plateaus will all appear to derive from a similar point in time even though they may all be of different age. The inability to differentiate between samples of different age, especially if there can be proven through excavation to be several centuries difference between them, makes any attempt to construct a timeframe for the observable sequences of construction problematic (Brindley 1999a, 134). As the method continues to be perfected the limitations associated with the calibration curve may be overcome like many other technical issues that have previously affected this technique. Two notable examples of such advancements were the overcoming of the previously limited ability to date samples contaminated by humic acid prior to the introduction of more advanced pre-sampling treatments and the capability to correct dates relating to Prehistoric contexts that were known to be too low as a result of fluctuations in atmospheric radioactivity (Aitkin 1990; Garwood 1999).

3.3: Age At Death Offsets

It is well documented that unless a dated sample is directly related to the event it is being used to date, like the collection of dates from the Sarn-y-bryn-caled timber circle (BM-2805) *circa* 2281-1985BC, (BM-2806) *circa* 2195-1939BC, (BM-2807) *circa* 2201-1889BC, (BM2808) *circa* 2276-1980BC (all charcoal samples from the charred outer growth rings of the timber uprights which were charred prior to being inserted in the post-holes), it merely dates the death of the organism from which the sample originated and not the deposit or the structure it has been used to date (Bowman 1990, 15). This is due to the fact that the point in time at which the dated sample died and its incorporation into the context that it is being used to date may not be contemporary events and may in fact be separated by several centuries. Radiocarbon analysis of a fragment of charcoal for example merely dates the death of the wood from which the sample derives and not the point in time at which it became incorporated into a feature associated with the monument that is under investigation (Gibson 2000, 45).

This is due to the fact that once a tree ring is laid down it ceases to interact with the biosphere, as a result there can be several decades and in some cases several centuries, if the sample is from a long lived species such as oak (Bowman 1990, 15), between the calculated age of charcoal from the inner and outer growth rings or sap wood of the same tree. This is known as the “old wood” problem (Bowman 1990, 15) and can hinder the usefulness of charcoal as a datable material. Therefore unless the sample was burnt *in situ* or charred as a form of weather proofing prior to being set in the post-holes like the posts of the timber circle at Sarn-y-bryn-caled a dated sample of charcoal is likely to have been of considerable age prior to being incorporated within the confines of the monument (Kinnes *et al.* 1991, 36).

It is therefore fortuitous that other short lived organic materials such as human and animal bone, cremations and antlers that are rarely affected by age at death offsets are often recovered from within the confines of these monuments. This is due to the fact that animals and humans continue to absorb carbon until death unlike trees whose heartwood is removed from the exchange reservoir while the outer growth rings carry on interacting with the carbon cycle (Bowman 1990). Nevertheless until recently large samples of bone were required in order to obtain a date during radiocarbon analysis therefore the advantages of dating such samples could not be exploited. Since its introduction AMS dating has enabled relatively small samples of bone, some as small as 1-2 milligrams, and under special circumstances only 50-100 micrograms in weight to be dated (Sheridan 2002). In addition the more recent development of the ability to date cremated bone using the small carbonate component contained within the hydroxyapatite-based inorganic fraction has greatly enhanced the database of radiocarbon determinations relating to events associated with the construction of these three monumental forms (Lanting *et al*. 2001; Naysmith *et al*. 2007).

For example during the excavation of the site of North Mains between 1977 and 1978 a burial (Burial A) which consisted of cremated remains was discovered sealed beneath the henge bank (Barclay 1983). Unfortunately radiocarbon dating as a technique had not advanced sufficiently to enable such samples to be dated at the time of the initial excavation. However a more recent dating programme was able to utilise the newfound ability to date smaller cremated bone fragments and duly subjected the remnants of Burial A to analysis (Sheridan 2002). The findings of this examination has assisted greatly in our ability to interpret this site as it provides a *terminus post quem* for the creation of the henge owing to the fact that Burial A was found to be clearly sealed by the henge bank during excavation (Barclay 2005). When this date (Gra-24007) *circa* 2196-1920BC was compared to the dates associated with the timber circles at North Mains it proved beyond doubt that this site did not consist of a henge encircling two rings of timbers (See case study 11) but indeed proved that the timber circles were the primary construction at the site and that they predated the henge by several centuries (Sheridan 2002, Barclay 2005, Gibson 2007).

Even though analysis of short lived materials is less likely to be affected by conventional age at death offsets like those highlighted above it can, on occasion, be affected by a similar phenomenon that is caused by human intervention. For example at the site of Stonehenge two right side cattle mandibles (OxA-4834) *circa* 3347-2941BC, (OxA-4835) *circa* 33412941BC and a cattle skull (OxA-4842) *circa* 3515-2919BC were recovered in such a condition that it is believed that they had been held in a protected environment for a prolonged period of time prior to being placed within the henge ditch (Serjeantson, 1995). Statistically, when calibrated the two mandibles were identical producing a date range of *circa* 3340-2920BC while the skull produced a date range of *circa* 3510-2919BC. This suggests that the skull may have been up to 500 years older than the two mandibles.

The fact that the skull was “much decayed and broken” does indeed imply that it may have been curated for a prolonged period of time prior to being placed in the henge ditch with the much younger mandibles at the same point in time as the stratigraphic evidence suggested (Serjeantson, 1995). The presence of such materials within the archaeological record, even though they were possibly placed within the ditch by those who excavated it in antiquity, can have a detrimental impact upon our ability to accurately date the initial construction of these monuments. This is due to the reality that had the skull been found in isolation and not in a condition that suggested the skull was placed *in situ* soon after the animals death then the possible age of the henge would have appeared to have been up to 500 years older than it actually was.

3.4: A Critical Review of Sampling Inconsistencies

Despite the abilities of radiocarbon analysis the accurate dating of the three monumental forms under investigation has often proved challenging. For while established radiocarbon chronologies exist, many sites have only been dated indirectly. It is therefore essential that the contextual integrity of any sample that is to be subjected to C14 analysis is maintained (i.e. the death of any dated material and the point in time at which it became incorporated into a feature associated with the act that is being dated must lay close together), otherwise its usefulness is greatly diminished (Waterbolk 1971: Kinnes *et al*. 1982, 209: Kinnes & Thorpe 1986: Garwood 1999). Unfortunately a review of the datable evidence relating to timber circles, henge monuments and stone circles highlights the fact that methodological and interpretive weaknesses relating to the strategies employed during the selection of datable materials have often failed to ensure that such a relationship exists. As a consequence there is a quantifiable degree of accuracy between individual radiocarbon determinations and their ability to be reliably associated with the event they have been used to date (Waterbolk 1971: Kinnes *et al*. 1982, 209: Kinnes & Thorpe 1986: Garwood 1999).

This variability within the archaeological record is arguably best highlighted by the volume of determinations that have been generated as a result of analysing bulk and mixed samples. Bulk and mixed samples have been taken from a variety of contexts more often where materials are dispersed throughout a deposit such as from the silts of ditches and post/stone holes. To obtain a date from such bulk and mixed samples, material is often individually selected and then combined in order to amass a large enough sample to enable analysis, which could not be achieved if these materials were dated in isolation. The fact that these samples may have been of different ages (especially if collected from features such as hearths where freshly fallen twigs could have been burned along with timbers that had formed part of a long standing structure) has often been observed to make dates derived from the analysis of these materials unreliable (Garwood 1999).

During the excavation of the class II henge at the Devil's Quoits for example several radiocarbon determinations were generated through the analysis of mixed samples that derived from more than one layer of ditch silt. (HAR-1887) *circa* 2882-2206BC was a combined sample of animal bone and antler fragments from the primary silt of henge ditch, taken from layers K and J/K and hearth F156 from the south terminal of the east entrance, while (HAR-1888) *circa* 2137-1753BC was a combined sample of bone and antler fragments from the primary silt of henge ditch, taken from layers L and K/L in cuttings IIIB, VIII and X/A (Barclay, Gray & Lambrick 1995). It may be the case that these combined samples were deposited within the henge ditch as a consequence of the same act or event. However the fact that they came from separate fill levels within the ditch not only suggests that they were of different age when they were deposited but also that these two contexts relate to different acts within the sites complex history.

It is not inadequate sampling strategies *per se* that limit the reliability of radiocarbon determinations it is the fact that often it is impossible to differentiate between materials that are actually directly related to the event that they have been used to date and those that have entered a deposit as a result of contamination. In general there are two types of contamination, contamination by natural forces and contamination by human intervention.   Contamination by natural forces can be caused by a number of factors, for example it is well documented (Ashbee 2004) that henge ditches and other excavated features such as post/stone holes are great receptacles for windborne materials. It is therefore reasonable to assume that at many sites loose materials like small deposits of charcoal or twigs could easily have been blown into such features. Therefore despite the fact that such deposits would be recovered from seemingly primary deposits during excavation any date generated by the analysis of such samples merely dates the age of the sample (which may be of considerable antiquity) and not the point in time at which it became incorporated within a given context or indeed the initial act of creating that context.

This fact was illustrated during the excavation of the interior of the henge at Balfarg Riding School where numerous samples were recovered from the post-pipes of the timber structures within the henge (Barclay & Russell-White 1993): for example, (GU-1905) *circa* 30902696BC alder charcoal from a post-pipe in the interior of a timber structure, (GU-1906) *circa* 2897-2503BC and (GU-1907) *circa* 3338-2696BC mixed charcoal samples of oak and alder from post-pipes (F7044) and (F7041) of the boundary posts belonging to the southern end of timber structure 2 (Barclay & Russell-White 1993). Such charcoal is unlikely to be related to the initial construction of this monument as it entered the post-pipe after the heartwood of the posts had rotted *in situ*. Therefore it is more likely that this charcoal was created elsewhere, possibly by the burning of materials in a bonfire or hearth, and then captured within these post-pipes as it was transported through the site *via* the wind or washed in as a result of rainwater. As it is impossible to know whether the creation of this transient charcoal post or predated the erection of the timber circle the charcoal may have been of considerable antiquity prior to being captured within the void left by the rotting timbers, but equally it may also have post-dated the abandonment of the site by several centuries.

The natural erosion of features such as henge banks, the sides of ditches or post/stone holes can also enable features to become contaminated. At many henge sites natural weathering is likely to have been responsible for the deposition of extraneous materials onto the base and into the primary silts of ditches. It is often noted during the excavation of many henge sites that the primary ditch silts are made up from the natural slippage of earth and rubble from the sides of the ditch that occurred during or immediately after construction. However the primary fills of the ditches may also derive from the natural weathering of these features. This can enable materials that were present within the old land surface to become incorporated into the primary ditch silts. Indeed at some sites this transferral of materials from the old land surface has been greatly increased by the burrowing of rabbits and other mammals. The dating of such redeposited material would make these ditch fills appear older than they actually are, often considerably so.

The negative impact of natural contamination upon the reliability of radiocarbon dates is potentially substantial. However a review of the archaeological record suggests that the impact of contamination arising from human agency has had a far greater detrimental impact. Such contamination is often a consequence of the continued reuse and occupation of many sites which results in primary structures being cut or completely destroyed by the digging or erection of subsequent features

(Gibson 2000, 45). This type of activity, although useful when formulating relative chronologies, has been seen to cause later materials to be introduced into earlier contexts and *vice versa*. Contamination such as this has been observed at sites like Temple Wood (North) where a sample of oak charcoal (GU-1296) *circa* 4316-3377BC was recovered from the base of stone-hole 8 of the stone circle which was observed to have cut the fill of an earlier post-hole associated with a timber circle (Scott 1998). This later activity could have facilitated the transit of packing material from the post-hole and enabled it to be redistributed throughout the later stone-hole. It is therefore unclear whether the dated sample (GU-1296) was associated with the timber circle or the later stone circle. Given the fact that this sample was found to be considerably earlier than most determinations held within the date lists for both timber and stone circles as a whole it seems more likely that this charcoal was residual material unrelated to the act or erecting either monument at this site.

Evidence similar to that uncovered at Temple Wood (North) can be observed at both the Northern and Southern timber circles at Durrington Walls and at the pit circle henge at Wyke Down. At Durrington Walls both circles were the subject of two phases of construction with the replacement circles being constructed directly above the circles they replaced to the extent that in many cases the features associated with the later construction cut or obliterated some of those linked to the earlier structures (Wainwright & Longworth 1971). For example (BM-396) *circa* 2853-2151BC antler, (BM-395) *circa* 2829-2056BC oak charcoal and (BM397) *circa* 2568-2037BC a mixture of animal bones were all recovered from layer 8 of the packing of post-hole 92 of the second phase of construction of the Southern Circle. During excavation post-hole 92 was observed to cut post-hole 179 of the phase one monument to the extent that it destroyed the northern half of the primary post-hole (Wainwright & Longworth 1971). Such interactions may have enabled datable materials to be transferred between the fills of these two constructed features.

Comparable evidence was also observed at the pit circle henge site of Wyke Down where the later recuting of several pits may have enabled the contamination of these later features (Bradley *et al*. 1991, 92-96). Several pits were recut and materials such as human skull fragments and animal bones were deposited within. These remains were the subject of deliberate deposition, however in pit I concentrations of charcoal, (BM-2396) *circa* 28982492BC, derived from oak heartwood were recovered and may have been incorporated into this feature unintentionally (Bradley *et al*. 1991, 96). Arguably this charcoal may have originated from the original fill of the pit and it may have been incorporated within this later deposit as the pit was recut and backfilled. The fact that there is no evidence of *in situ* burning within this deposit suggests that this material was not directly related to the excavation of this pit. Therefore any date derived from this material should be considered as unreliable as it cannot be firmly associated with either feature.

The literature suggests that contamination of this kind is not limited to small localised areas but in some cases can affect large sections of an entire monument complex. For example during the excavation of Avebury a collection of antler picks were recovered from the henge ditch. However it is unclear to what point in the henge's history these picks relate as excavations have proven that an initial ditch and bank (Avebury I) were replaced by a more imposing earthwork (Avebury II)

(Pitts & Whittle 1992, 206: Gillings & Pollard 2004). This is due to the fact that analysis of one pick (HAR-10502) *circa* 3329-2630BC demonstrates that it is at least several centuries older than similar picks that derive from the base of the same ditch, such as sample (OxA-12555) *circa* 2834-2472BC (Pitts & Whittle 1992: Pollard & Cleal 2004). There are two main theories which may explain this anomaly, firstly; it may have been the case that some of the picks used to create the initial monument (Sharples 2000, 109-110) were retained and placed in the ditch relating to the second phase of construction as a sign of remembrance to the earlier monument or secondly; the old picks may have simply been lying around in the old land surface prior to the excavation of the secondary ditch and then subsequently become incorporated into its fill with the more modern antlers during construction.

The inability to accurately define to which phase of construction this pick relates makes dating the separate phases of construction at Avebury problematic. However the fact that antler tends not to survive well if left in an exposed environment for prolong periods of time, yet can survive if curated and/or buried in the correct conditions, may suggest that the initial theory on why it was recovered with much younger material may have more credence. When the Avebury data is considered in conjunction with comparable evidence from Stonehenge, where an ox skull showed signs of being retained when compared to dates relating to materials from similar contexts (Serjeantson 1995, 442), it highlights the fact that only where we are presented with multiple reliable samples from the same context (such as at Avebury and Stonehenge) is it possible to detect anomalous dates – whether too young or too old. Equally in cases where we have single dates, such as the sample of oak charcoal from the top of the primary silts of the henge ditch at Thornborough

South (Beta- 143015) *circa* 17501511BC (Harding 2003), the integrity of the date becomes much more open to interpretation.

Arguably the most common reuse of these three monumental forms involves the burial of human remains. At many sites both inhumations and cremations have been uncovered. In most cases it has proven difficult to determine at what point in a site's history these internments were laid within their confines during excavation. For example, at many henge sites internments were placed in the fills of the henge ditches. In the case of Gorsey Bigbury a cist burial was placed in the primary silts of the henge ditch (ApSimon *et al*. 1976), although this burial was clearly stratigraphically later than the act of digging the ditch it is impossible to know what period of time elapsed between these two events, indeed it is more useful in the dating of the secondary ditch silts. Burials sealed beneath the bank of a henge, like (burial A) at the site of North Mains, are however more useful as they can be proven beyond doubt to pre-date the erection of the bank and thus provide a *terminus post quem* (Barclay 1983).

Data such as this from North Mains is rare within the archaeological record with the majority of dates from these sites coming from remains that were deposited within the areas enclosed by timber circles, henges and stone circles (See site catalogue, Appendix III). These burials rarely have a stratigraphical relationship with the encircling constructed elements of these sites. Consequently it is difficult to determine how these burials relate to the history of the monument. As a consequence dates derived from internal burials cannot be used to date the construction of the encircling monuments and as such should always be treated with caution. Similarly at composite sites such as the Stones of Stenness and Woodhenge materials from the inner stone /wood elements cannot be used to date the construction of the outer encircling henge unless comparable material can be recovered from both structures or a stratagraphical interface can be identified.

3.5: <u>Conclusion</u>

It can be seen that the radiocarbon databases relating to timber circles, henge monuments and stone circles are at best open to interpretation as a consequence of the fact that each individual determination may have been adversely affected by numerous variables. As highlighted, these variables range from problems associated with age at death offsets and technical issues to the degree to which the contextual integrity of each sample has been maintained during excavation. Such uncertainty suggests that there is an unquestionable requirement for the degree to which these factors may have affected the date lists to be established. Regrettably it is far beyond the reaches of this study to overcome the technical limitations noted in (3.2) relating to the plateau in the calibrated radiocarbon chronology of the late fourth and first half of the third millennium BC. However it can critically review and evaluate the degree to which age at death offsets and inadequate sampling strategies may have affected the reliability of the currently accepted radiocarbon chronologies by using the data gathered by the above investigation and by previous investigations into poor methodological practises and interpretative weaknesses relating to the selection of datable materials.

3.6: A Note on Bayesian Statistics

Bayesian chronological modelling has become widespread throughout the field of archaeology as it is a good means of combining archaeological evidence, such as stratigraphic or relative dating, with scientifically obtained radiocarbon dates to provide an accurate date for an historic event or action (Steier & Werner 2000). The Bayesian approach allows the analysis of a new problem ('the standardised likelihoods') in the context of our existing experience and knowledge about the problem (our 'prior beliefs'). This ultimately enables a new understanding of the problem to be achieved which incorporates our knowledge of both the new and old data (our 'posterior beliefs'). When applied archaeologically 'the standardised likelihoods' derive from the data produced by samples that have been subjected to radiocarbon analysis while our 'prior beliefs' are formulated by the archaeological data. The accuracy and usefulness of this method increases as more data is applied to the model as what was once the posterior belief becomes the prior belief when new standardised likelihoods are examined (Bayliss 2009).

The fact that this method is based upon more than one strand of evidence makes it unquestionably more reliable than analysing individual radiocarbon determinations in isolation. This technique has proven useful during the study of most time periods from the Holocene onwards however its greatest impact thus far has been upon the study of Early Neolithic and Bronze Age monuments (Bayliss 2009). This is due to the fact that a series of large scale investigations have been undertaken that have focused primarily upon monuments dating to this period. These have included monuments such as Long barrows (Whittle *et al*. 2007), causewayed enclosures (Germany 2007; Allen & Bayliss 2008; Mercer & Healy 2008; Whittle *et al*. 2011) and cursus monuments (Barclay & Bayliss 1999). The strengths of this method are that it can enable the pace of change to be more accurately determined. Arguably the greatest example of this can be noted during the recent Stonehenge Environs project where Bayesian modelling enabled direct comparisons to be made between the site of Stonehenge and local monuments such as Durrington Walls (Parker Pearson 2007).

Despite its advantages this technique will not be utilised to determine the accuracy of the data relating to timber circles, henge monuments and stone circles in this instance. This is due to the reality that the accuracy of the data itself, which forms the basis of our 'prior beliefs' is currently open to interpretation. Therefore it would be a meaningless exercise to subject all the data to Bayesian analysis if there are inconsistencies within the data itself. In addition a synopsis of the datable evidence also highlights the fact that there is relatively little comparable evidence that could be analysed. As a result the principals of Bayesian modelling will be adopted by this study however Bayesian statistics themselves will not be utilised as the premise of this study is to determine the accuracy of the data itself not the accuracy of the means or methods by which it is analysed.

Chapter 4

A Critical Reassessment of the Radiocarbon Determinations Associated with Timber Circles, Henge Monuments and Stone Circles.

4.1: Introduction

As highlighted (chapter 3), the integrity of radiocarbon dates must always be evaluated (Garwood 1999, Waterbolk 1971, 15). The purpose of this chapter is to acknowledge the issues highlighted in chapter 3 and respond to them by creating a set of criteria that can be formulated in such a manner that they can be used as a *pro forma* to assess the integrity of each individual determination. The *pro forma* will enable the radiocarbon assays to be assessed in two ways. Firstly the accuracy of the relationship between the dated sample and the event or act it has been used to date will be considered **(4.2)**. Secondly the impact of age-at-death offsets will be assessed **(4.3)**. To be included in this reassessment, each dated sample must originate from a site that has been subjected to an archaeological investigation and have subsequently been promulgated as being able to date a phase of a site's construction. In order to enable the results of this reassessment to be applicable to the aims of this study (**1.1**), sites will be selected from throughout the whole of Great Britain where sufficient data is available. The analysis of such a large sample area will limit the possible impact of regional trends that might otherwise affect the overall findings of this study.

4.2: A Critical Review of the Sampling Strategies Employed During Excavation

The reliability of the relationship between individual radiocarbon determinations and the event or act it has been used to date will be assessed by comparing the context from which the sample derived against a series of statements. These statements are based around the recommendations made in Waterbolk's 1971 paper on working with radiocarbon dates and Garwood's 1999 corpus on the chronology and interpretation of Grooved Ware in southern Britain, but have been tailored specifically to critique samples that have been collected from timber circles, henge monuments and stone circles. Samples that can be accurately compared to Categories 1-3 will be considered as reliable as they have either a certain or probable relationship with the structure they have been used to date. While samples that fall more in line with the statements in Categories 4-5 will be considered as unreliable data as they have at best only a possible relationship with the structure they have been used to date.

1. **Certain Relationship**. The dated material has an unquestionable relationship with the construction of the monument. For example (BM-2808) which was one of four samples of charcoal from the post-holes of the Sarn-y-bryn-caled timber circle that was proven to have originated from the charred outer growth rings of the timber uprights that had been burned prior to being inserted in the post-holes.

2. **High Probability**. Materials that are taken from secured contexts where although not directly related to the construction of the monuments they are able to provide a *terminus post quem* or *a terminus ante quem*. For example burial A (Gra-24007), that was found sealed beneath the henge bank at North Mains. This category also includes materials that may have been used to construct these monuments like the antler picks that have been recovered from

the base of many henge ditches, such as Avebury, which are believed to have been used in the initial excavation of the ditch.

3. **Low Probability**. Although the sample was taken from a secure context its relationship with the act of constructing the monument cannot be confirmed due to the nature of the material. This will include samples that may have been placed within the confines of the monument as part of a ritual. As a result the provenance of such a material is difficult to establish, as this offering may have been subject to curation. For example the ox skull recovered from the base of the henge ditch at Stonehenge, which was proven to have been over 200 years older than several other dated samples from the same context. This category will also include samples such as charcoal (from the same species) found in concentrations in secured contexts such as post/stone-holes and the silts of henge ditches, like that sample of oak charcoal (Beta- 143015), recovered from the top of the primary fill of the inner henge ditch at Thornborough South.

4. **Contestable Relationship**. The relationship between the dated sample and the construction of the monument cannot be confirmed. This will apply to small and scattered concentrations of materials such as charcoal or animal bones from the secondary/upper silts of henge ditches or post/stone-holes, such as the sample of charcoal (BM-791) which derived from the secondary fill of the henge ditch at Mount Pleasant. Equally materials that are believed to have been present within the old land surface that became incorporated into the henge ditch as a result of later weathering will also be placed within this category.

5. **Unrelated**. Any radiocarbon determination derived from a sample that has no relationship with dated event or act. This will apply to materials such as mixed charcoal samples from henge ditches or post/stone holes that were collected as a result of bulk sampling like (GU-1904) from Balfarg Riding School. In addition contaminated samples, which have not been subjected to pre-treatment, will also be classified as unrelated, as the degree to which they have been contaminated is unknown without further analysis. For example (BM-558 & BM559) which are samples of animal bone and antler that were recovered from the henge ditch at Marden during the 1969 excavations.

Table 1: Reliability of individual radiocarbon determinations. (Adapted from Waterbolk 1971 & Garwood 1999).

4.3 A Critical Assessment Of The Impact Of Age-at-death Offsets

As highlighted (chapter 3) it is essential to quantify the degree to which age at death offsets may have affected the reliability of individual radiocarbon determinations. The extent to which age at death offsets are likely to have affected the reliability of each individual radiocarbon determination will be quantified by comparing the material from which each sample derives to the descriptions listed below in **Table 2**. Categories 1-2 will be considered as being acceptable as the age offsets are minimal, while categories 3-4 will be considered as unacceptable as the age offsets are likely to be in access of 100 years.

1. **<20 years.** The difference in date between the death of the sample and its deposition is likely to be so small as to be negligible. This includes charcoal samples derived

from twigs or the outermost tree rings; animal remains and articulated human skeletons or cremations that have been placed in a grave.

2. **<100 years**. The time difference between the death of the material and its deposition can amount to several decades such as charcoal from short life species.

3. **>100 years.** The time difference between the death of the material and its deposition may amount to centuries, for example charcoal from wood species with a long life span such as oak.

4. **Unknown**. The nature of the dated sample is not known, as it has not been deposited in direct association with any constructional phase of activity. For example fragments of antler or bone that may have been disturbed by later constructional activity at the site and included into contexts to which they are unrelated.

Table 2: Quantification of age at death offsets. (Adapted from Waterbolk 1971 & Garwood 1999).

4.4: Comparison Pro forma

		Age At Death Offsets (4.3)			
		<20 years 1	**<100 years 2**	**>100 years 3**	**Unknown 4**
Relationship To Constructed Feature (4.2)	**Certain Relationship 1**				
	High Probability 2				
	Low Probability 3				
	Contestable Relationship 4				
	Unrelated 5				**X**

Table 3: ***Pro forma*****,** containing the results of North Mains, (GU-1436) 4130 ± 60BP (*circa* 2884-2501BC). Sample of mixed charcoal recovered from the post-pipe of a post-hole associated with timber circle A.

The above (table 3), shows how each individual radiocarbon determination is to be compared to the set of criteria laid out in sections (**4.2)** & **(4.3)**. In this case the example used is (GU1436) which is a sample of mixed charcoal that was recovered from the post-pipe of posthole A-13 of timber circle (A) during the excavation at North Mains (Barclay 1983). The sample can be proven (as a consequence of its location within the post-pipe) to have entered this context after the timber circle had ceased to be maintained and after the post had rotted *in situ*. It may be the case that the posts that made up circle A were charred (like those of Sarny-bryn-caled) prior to being erected, thus the fragments of charcoal analysed in this sample may have been from the actual post and therefore directly related to the creation of the timber circle. However the fact that this sample consisted of the carbonised remains of several different species suggests that much of this material did indeed become incorporated into the post-pipe after timber circle A had fallen into disrepair. This deposition could have been facilitated by natural agents (such as those discussed in **3.4)** or maybe have been as a result of the site being cleared prior to the construction of the later henge (Barclay 2005: Gibson 2007).

As a result the sample can at best only have a contestable relationship with the initial erection of timber circle A. The fact that sample (GU-1436) was a mixed charcoal sample, containing both short and long lived species, makes quantifying possible age at death offsets impossible. Despite the reality that the analysed materials clearly entered the post-pipe after the respective timber had rotted these charcoal are not necessarily younger than the erection of the timber circle as these samples could still have been of considerable age prior to entering this deposit. As a result sample (GU-1436) scores a mark of 9 out of 9 on the *pro forma*. For the purpose of this study any sample subjected to analysis in this way must score a combined total of no more than 4 to be considered reliable. Any sample that scores between 5 and 7 will be considered of importance but less reliable and any date that scores higher than this will be considered completely unreliable and will be excluded from the concluding chapter that attempts to determine whether the currently accepted chronologies for timber circles, henge monuments and stone circles are correct. The data produced by this assessment can be found in Appendix II while a discussion of the major findings can be found in Chapter 7.

Chapter 5

Case Studies.

5.1: Introduction

Thus far this study has highlighted the reality that there are several factors relating to the limitations of radiocarbon dating and numerous anomalies within the contextual data that may have affected the degree to which the currently accepted chronologies for timber circles, henge monuments and stone circles may still be considered accurate. It has also been highlighted how, until recently, relatively little attention has been given to resolving these issues through the rigorous reassessment of these data (see chapters 2-4). Therefore in order to achieve the aims of this research, set out in section (1.1) this chapter will select 15 composite sites from the site catalogue (Appendix III) and subject them to a reassessment that analyses the contextual data, datable evidence and any relevant theories relating to the development of each monument on an individual site by site basis. The position of knowledge that has been gained during the compilation of the site catalogue (Appendix III) and chapters 2-4 of this study will be used to create a standard by which these sites will be assessed.

For the purposes of this study the currently accepted chronologies for timber circles, henge monuments and stone circles will be disregarded in order to enable an unbiased appraisal of the data to be achieved. The benefits of such a review are three fold, firstly; it will enable the ever increasing accuracy of scientific dating techniques and tightened chronologies for the material culture associated with these structures to be taken into consideration, secondly; it will facilitate the removal of any misinterpretations of the contextual data that may otherwise have become established as fact within the archaeological literature and thirdly; it will enable established assessments and theories to be tested and reappraised against new evidence which should ultimately determine the overall accuracy of these data. Such reassessments of other monumental forms and elements of Prehistoric material culture, as highlighted already, by this study have been very successful in removing inaccurate data from the archaeological record and in devising new chronologies in light of fresh and comparable data being available. The case studies that have been considered in this chapter can be found in Appendix I while the site catalogue that has provided supporting data can be found in Appendix III. The major findings of this all-encompassing review can be found in chapter 6.

5.2: Table of Selected Case Studies

The following table (table 4) denotes the composite sites that have been selected from the site catalogue (Appendix III) for a more in depth reassessment by this study. Analysis of the data associated with these fifteen selected sites should enable a fair appraisal of the degree to which the currently accepted sequence of **timber Circle – henge Monument – stone Circle** can still be considered accurate. This is due to the fact that firstly; these sites have been chosen on account of the reality that they demonstrate the full variety of these three classes of monument, secondly; they are spread throughout the study area (and therefore should not be affected by regional variations) thirdly; all sites have been sufficiently excavated to the extent that sequences of construction have either been identified or inferred through the analysis of the contextual data and finally; adequate datable materials have been recovered that enabled many of these identified sequences to be dated by both absolute and relative dating methods.

Site	Currently Accepted Sequence & Theories To Test Where Applicable
No 1. Arminghall	**Timber Horse Shoe - Class I Henge.** Theory suggests that the timber horse shoe predates the henge on account of the misalignment between the post-ramps and henge entrance. (Gibson 2005).
No 2. Avebury	**Stone Circles & Henge Contemporary / Henge – Stone Circles.** Early theories suggested that the stone circles and henge were contemporary constructions (Smith 1965) while more recent studies have suggested that the henge predated the rings of stone (Burl 2000; Pitts & Whittle 1992).
No 3. Balfarg	**Class I Henge Monument & Timber Circles – Stone Circles**. It is suggested that the henge and timber circles were contemporary constructions. The timber rings were proven to have been replaced by two stone circles as stone-holes clearly cut earlier post-holes (Mercer 1981).
No 4. Broomend of Crichie	**Stone Circle - Class II Henge – Timber Circle.** It is suggested that the stone circle and its accompanying avenue pre-date the henge owing to its alternative alignment and the fact that the henge bank and ditch impinges upon the line of the avenue. The henge is believed to pre-date the timber circle which is located outside the southern entrance as the timber circle is positioned upon the later alignment established by the secondary henge (Bradley 2011).

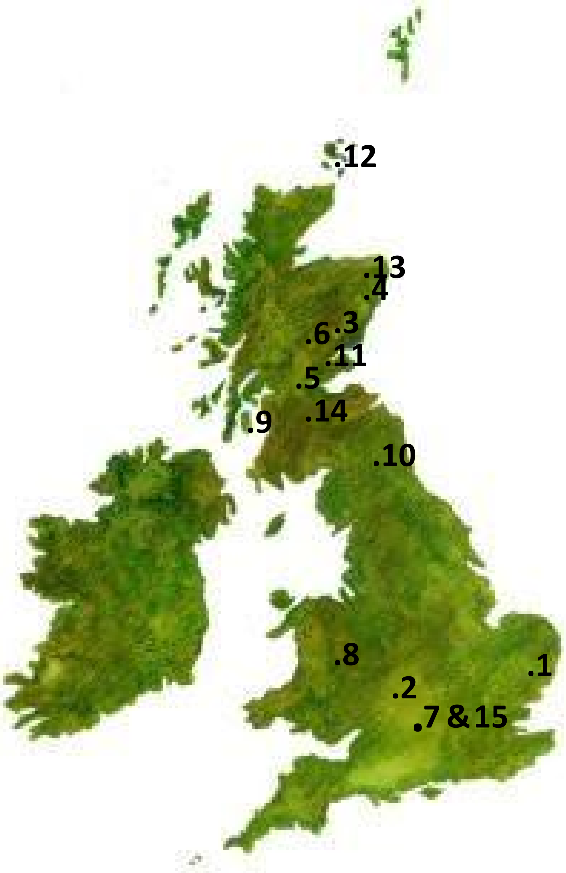
No 5. Cairnpapple Hill	**Primary Stone Circle – Secondary Stone Circle & Class II Henge Contemporary / Class II Henge & Timber Circle – Stone Circle / Stone Circle – Class II Henge – Funerary Monument.** Initially it was suggested that the stone circle and henge were contemporary constructions. This theory was altered to reflect the belief that the stone-holes actually represented a series of post-holes. More recently this theory has been altered once more to reflect the opinion that the pits were in fact initially intended to hold stones (Piggott 1950; Barclay 1999; Bradley 2011).

No 6. Croft Moraig	**Timber Circle – Stone Oval –Stone Circle / Stone Circle –Timber Circle – Stone Oval.** Initially it was believed that the stone monuments replaced a pre-existing timber circle which was built during the Neolithic, however this sequence was later reversed in light of the reality that the timber circle and stone circle shared a similar alignment and the fact that a new ceramic dating programme placed the destruction of the timber circle to the Later Bronze Age (Piggott 1971; Bradley & Sheridan 2005).
No 7. Durrington Walls	**Timber circles North & South Phase I - Timber circles North & South Phase II & Henge.** It is suggested that the primary phases of the two timber circles stood in isolation with the secondary phases being possibly contemporary with the encircling henge (Wainwright & Longworth 1971).
No 8. Dyffryn Lane	**Stone Circle – Class I Henge.** It is suggested that the stone circle pre-dates the henge on account of the fact the radiocarbon data is able to provide a *terminus post quem* for the construction of the henge and a *terminus ante quem* for the stone circle (Gibson 2011).
No 9. Machrie Moor I	**Timber Circle – Stone Circle.** The primacy of the timber circle is suggested on account of the fact that stone holes clearly cut the earlier post-holes (Haggarty 1991).

No 10. Milfield North	**Timber Circle – Class II Henge.** The primacy of the timber circle is suggested on account of the fact that material from the henge bank clearly seals the remains of an earlier posthole (Harding 1981).
No 11. North Mains	**Timber Circle B – Timber Circle A – Class II Henge.** The primacy of timber ring B is suggested due to its misalignment with the much larger ring A, while the primacy of timber ring A over the henge is suggested on account of the proximity of the post-holes to the henge ditch and the radiocarbon evidence (Sheridan 2002; Barclay 2005; Gibson 2005).
No 12. Stones of Stenness	**Stone Circle – Class I Henge / Class I Henge – Stone Circle.** It is suggested that it would have been a far easier task to excavate the henge ditch around a pre-existing stone circle than place the stones along the inner lip of the henge ditch. However it is unclear whether the datable evidence supports such a sequence (Ritchie 1976 & 2001; Gibson (2005
No 13. Strichen	**Stone Circle – Timber Circle – Round House.** It is suggested that a decorated stone found in the packing of a post-hole associated with the timber circle was originally associated with a grave that was contemporary with the stone circle (Phillips *et al*. 2006).
No 14. Temple Wood (North)	**Timber Circle – Stone Circle.** The primacy of the timber circle is suggested on account of the fact that stone holes clearly cut the earlier post-holes (Scott 1988).
No 15. Woodhenge	**Class I Henge & Timber Circles Contemporary / Timber Circles – Class I Henge.** Initially it was suggested that the henge and multiple timber circles were contemporary constructions while more recent studies have suggested that the timber circles pre-dated the henge owing to the proximity of the post-holes to the inner lip of the henge ditch (Cunnington 1929; Piggott 1939; Gibson 2005).

Table 4. List of case studies, including the currently accepted sequences and supporting theories for the selected sites.

5.3: <u>Location of Selected Case Studies</u>



- 1. Arminghall
- 2. Avebury
- 3. Balfarg
- 4. Broomend of Crichie
- 5. Cairnpapple Hill
- 6. Croft Moraig
- 7. Durrington Walls
- 8. Dyffryn Lane
- 9. Machrie Moor I
- 10. Milfield North
- 11. North Mains
- 12. Stones of Stenness
- 13. Strichen
- 14. Temple Wood (North)
- 15. Woodhenge

Figure 1: Location of 15 case study sites.

Chapter 6

A Discussion Of The Evidence Generated

By The Analysis of The Fifteen Selected Case Studies.

6.1: Introduction

The purpose of this chapter is to discuss the major findings that have been made during the analysis of the fifteen case studies that were selected in chapter 5 from the site catalogue (Appendix III). These observations, in conjunction with the position of knowledge that was gained during the review of the radiocarbon evidence (Chapters 3, 4 & Appendix II), have enabled this study to ascertain the accuracy of the currently accepted chronologies for these three monumental forms and the extent to which the established sequence of **timber circle – stone circle – henge monument** can still be considered tenable. This is due to the reality that data has been identified within all of these case studies (by this study and previously by other authors) that has proven sufficient to enable building sequences to be demonstrated beyond reasonable doubt. When the observed evidence from the individual sites is combined and analysed collectively it suggests that there may be a requirement to update the currently accepted chronologies for these three monumental forms.

NB: As in chapter 5 the case studies that have been considered during the compilation of this chapter can be found in Appendix I and the site catalogue that was used for supporting evidence can be found in Appendix III. In addition all radiocarbon determinations discussed in this section can be found in Appendix II.

6.2: Discussion

Analysis of the evidence generated during the examination of the selected case studies highlighted several key factors that require further consideration by this study. The most poignant of which is arguably one of the most neglected pieces of data relating to these three monumental forms. This overlooked evidence relates to the significance that the ancient remodelling of many timber circles seems likely to have had upon the current inability to accurately recreate chronological sequences for many sites. Such evidence was noted during the compilation of the case studies for the sites of North Mains, Machrie Moor I, Durrington Walls, Woodhenge and Balfarg where it was apparent that, at least in these five cases, the uncovered post-holes were the result of two separate phases of development. For example subsequent to the excavations at North Mains it was suggested that the construction of timber circle (A) pre-dated that of ring (B) (Barclay 1983). This sequence was later reversed by Gibson following a further reassessment (Gibson 2005, 36-37).

The review of the initial excavation report and later reassessment by this study (Case study 11) identified no evidence to contradict this re- interpretation of the data. This is due to the reality that it is indeed clear that ring (B) is positioned off centre within the larger circle (A) to the extent that in the south-west sections the posts of both circles lie in very close proximity to one another (see figure 2). The lack of circularity between the two structures does indeed suggest that ring (A) was a replacement for the smaller ring (B) as ring (A) was built on a much larger scale with more substantial posts and encircled the area previously occupied by circle (B) (Barclay 2005).

Figure 2. The timber circles at North Mains. (From Barclay 1983, Fig 3, with amendments). The inner ring (B), denoted in red, can be clearly seen to lie off centre within the more substantial ring (A) marked out in yellow.

The radiocarbon determinations associated with the timber circles at North Mains come solely from contexts associated with ring (A). The majority of these derive from the postpipes with only one determination coming from the primary post packing (Barclay 1983, 8084). This determination, a sample of oak charcoal from post-hole A5 (GU-1354), suggests that ring (A) was constructed prior to the period *circa* 2873-2351BC (Barclay 1983, 133). The fact that ring (B) can be proven to pre-date the construction of ring (A) pushes the date for the initial construction of a timber monument at this site beyond this point in time. Such evidence is integral, as it shows that double rings of post-holes that are regularly regarded as contemporary constructions may in fact be of different age. Similar evidence to the North Mains data was uncovered during the compilation of the case study for the site of Machrie Moor I (case study No 9), as scrutiny of the post-holes highlighted the likelihood that they also represented the remains of two distinct phases of construction.

This study suggests that the initial construction at Machrie Moor I consisted of the main ring of posts encircling a central horse shoe of large posts that was open towards the north-west (see figure 3). Evidence for the primacy of these posts over the remaining outer ring derives from the fact that several of the posts associated with the inner circle appear to have been maintained over a period of time ultimately resulting in the removal and replacement of several timbers (Haggarty 1991, 62-63). The repair of rotted posts was not observed within any context associated with the outer ring, which suggests that this outer circle was a later addition to the site. The arrangement of the outer ring (i.e. in a series of straight lines, highlighted in figure 3) implies that this ring may have formed a series of screens to block views and/or access into the pre-existing inner ring and central setting. This theory is supported by the location of the small setting of posts (that was found to be situated between the main ring and horseshoe arrangement) which appear to have formed a similar function to that of the outer circle by creating a screen between these two features (see figure 3).

The radiocarbon evidence from Machrie Moor I, despite the accuracy of some samples being questionable (see Appendix II) appears to support this proposed sequence. This is due to the fact that there is a clear difference in age between individual posts of the main ring of timbers. A prime example of this discrepancy can be demonstrated through the analysis of (GU-2316) which dates to the period *circa* 3354-2943BC and was a sample of mixed charcoal from the double post-hole F1271 and (GU-2325) *circa* 2925-1962BC which was a sample of oak charcoal from the single post-hole F1280 (Haggarty 1991, 60-64). For when these data are compared to the date generated by the analysis of a small sample of hazel and oak charcoal that was recovered from post-hole F1326 of the outer ring (GU-2324) *circa* 2894-2356BC it suggests that the outer ring was added to the site at a later date, but possibly while some of the timbers of the main ring were still *in situ*. Indeed these data imply that elements of the inner circle may have been renovated at the point at which the outer circle was constructed.

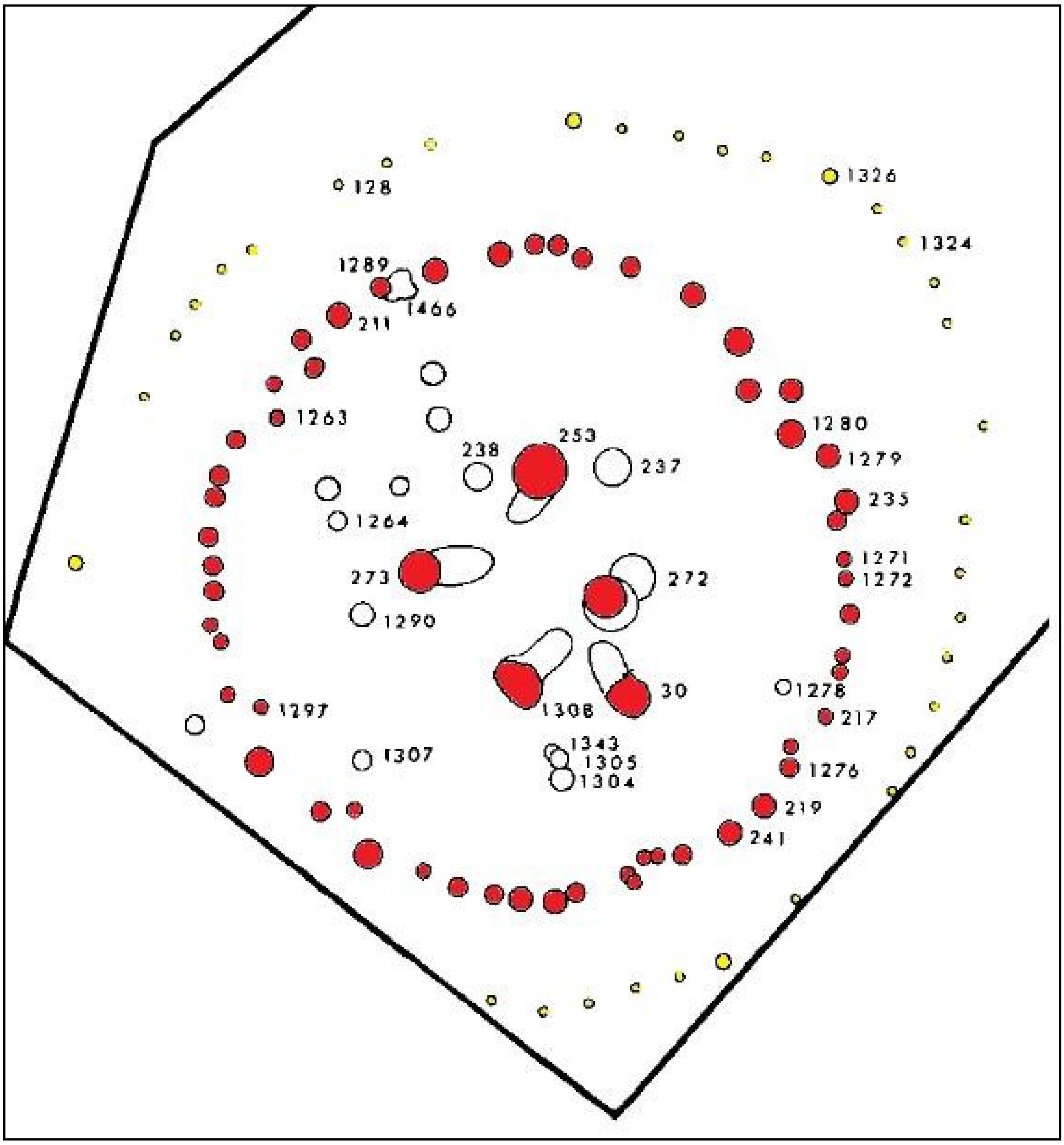


Figure 3. The two phases at Machrie Moor I. (From Haggarty 1991, illustration 5 with amendments). Plan shows the two phases of construction proposed by this study for the timber circles at Machrie Moor I. Red postholes denote the primary phase while the yellow postholes mark out the general alignment of secondary construction.

However owing to limitations in the accuracy of the radiocarbon data from this site (see case study No 9 and Appendix II) it is impossible to truly substantiate such a theory with any degree of certainty. Comparable evidence that lends support to the sequences proposed above has previously been identified by Wainwright after his excavations of the two timber circles at Durrington Walls (Wainwright &

Longworth 1971) (case study No 7). Wainwright suggested that the initial construction at the Northern Circle consisted of a single ring of timbers that was replaced at a later date by two smaller concentric circles of posts (Wainwright & Longworth 1971). Similarly at the Southern Circle Wainwright was in a position to demonstrate that initially this site consisted of four concentric rings of timbers which were at a later date replaced by six rings of posts that had similar diameters to those associated with the initial phase (Wainwright & Longworth 1971).

Acceptance of the existence of two dual phase timber monuments at Durrington Walls is well documented (Harding 2003; Gibson 2005) and more recently (Parker Pearson 2007) therefore there is little need for further discussion here other than to reiterate that these chronologies were established on account of unquestionable contextual data that included the cutting of post-holes and ramps of the primary phases by those associated with the secondary structures. A notable example of this evidence comes from the Southern Circle where post-hole D77 of the phase II circle was clearly observed to cut posts B161 & B162 of the phase I ring during excavation (Wainwright & Longworth 1971) (For further examples see case study No 7). The reassessment of the data relating to the timber circles at Durrington Walls by this study could not find any evidence to contradict Wainwright's proposed sequences or the more recent reassessment of this site (Parker Pearson 2007) and therefore fully endorses them.

It is however of considerable interest that the radiocarbon determinations (which have been assessed in Appendix II) for the Southern Circle at Durrington Walls demonstrate that phase I was constructed *circa* 2578-1959BC based upon the analysis of samples of antler from postholes 133-4, 141, 193-4 (NPL-239) while the second phase of the Northern Circle dates to the period *circa* 2849-2037BC based upon a sample of antler pick from post-hole 42 (NPL-240) (Wainwright & Longworth 1971). Such data demonstrates that there was at least one timber monument (in one form or another) standing *in situ* at the site of Durrington Walls for over several centuries, especially when the undated phase I Northern Circle is added to the equation (see case study No 7).

Contemporary excavations appear to support such a claim for the rebuilding, reuse and occupation of timber monuments at Durrington Walls. Recently evidence was uncovered that demonstrated how some post-holes of the Southern Circle had been later cut by a series of pits that had been used to deliberately deposit materials such as sherds of Beaker Ware (Parker Pearson 2007). One such post-hole (099), also contained the remains of an antler pick (OxA-14976) which dated to the period *circa* 2570-2350BC (Parker Pearson 2007). It is impossible to accurately determine whether this antler fragment was already present within the post-hole prior to the act of digging the pit or whether it was deliberately placed there after the post had rotted *in situ*. Nevertheless it is beyond doubt that timber monuments were in continuous use in one guise or another at Durrington Walls throughout a period that seems likely to have consisted of several centuries as the new series of dates from the post-holes surrounding (099) all fall within the parameters initially established by Wainwright's excavations.

This hypothesis was compounded by the evidence generated by the compilation of the Woodhenge case study (No 15), a site that lies in close proximity to the Durrington Walls circles. During the assessment of the Woodhenge evidence it became apparent that the six concentric rings of posts seemed unlikely to be contemporary constructions either. It is clear that the post-ramps of ring C all face in a southerly direction which means that rings D-F could not have been *in situ* when the timbers of Ring C were erected, as these smaller posts would have impeded upon the use of the post-ramps associated with ring C (See figure 4). Therefore the discovered post-holes at Woodhenge must represent the remains of two distinct phases of construction.

This study proposes that phase I consisted of three concentric rings of posts, rings D, E and F. While phase II, (which was constructed after the phase I circles had either fallen into disrepair or been deliberately removed) constituted a much larger circle that had a more substantial setting of posts in its interior (Ring C) and an encircling ring of smaller timbers (Ring B) that had an entrance in the north-west. Ring B was then encircled by ring A at a later date, possibly because of a requirement to replace these outer rings more frequently owing to them being slight in comparison to the inner rings. Unfortunately recent excavations at Woodhenge (Pollard & Robinson 2007), were unable to generate any additional datable evidence during excavation that may have assisted in proving an accurate date for these changes.

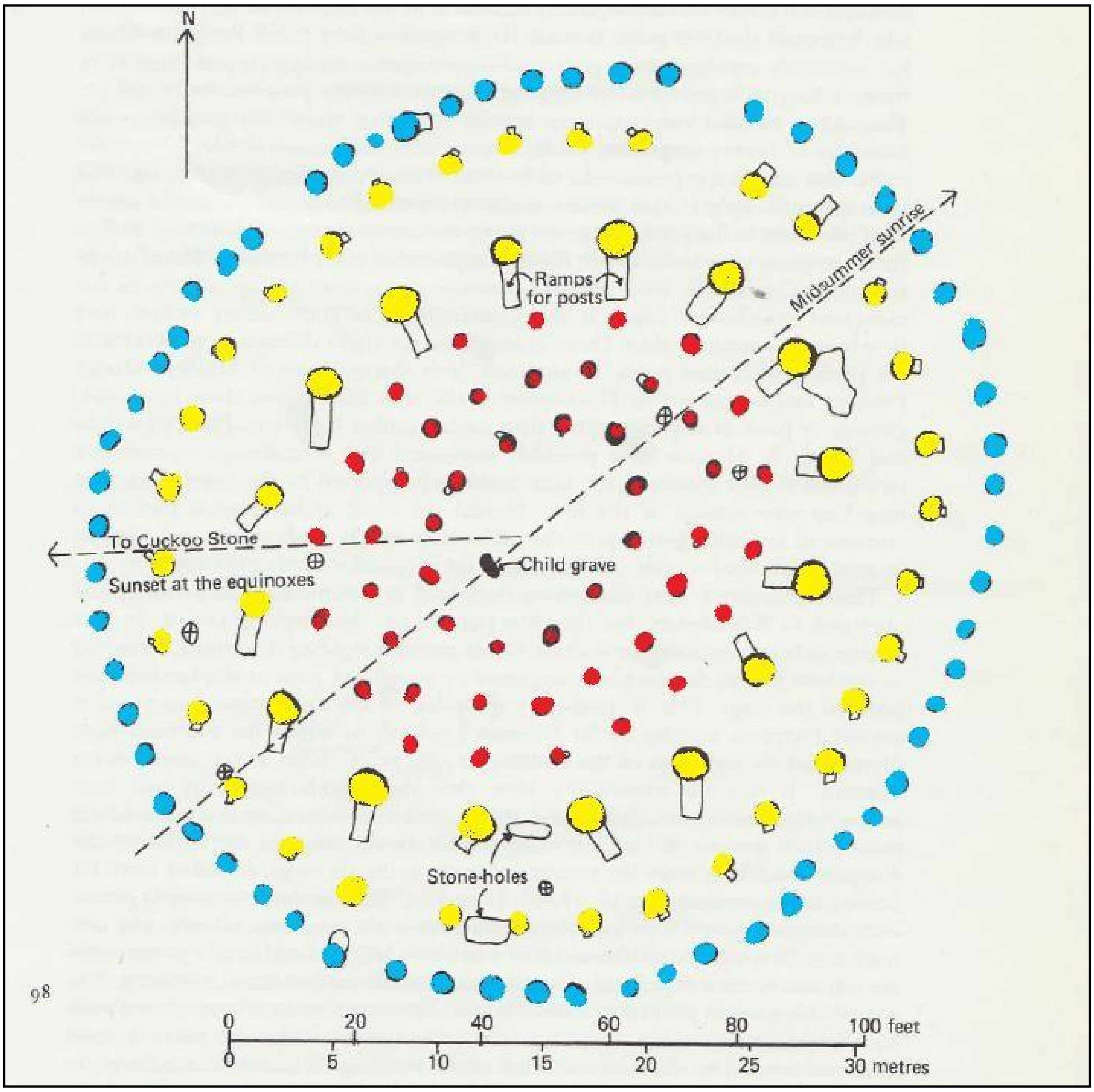


Figure 4. The Phases of construction for the timber circles at Woodhenge. (From Cunnington 1929, with amendments). The plan demonstrates the three phases of construction suggested by this study, phase I is marked out in red, phase II is denoted in yellow and the likely phase III is marked out in blue.

Similar evidence to that from Woodhenge was also uncovered during the compilation of the Balfarg case study (No 3) despite the reality that many post-holes at this site had been damaged through the processes of natural erosion. At Balfarg timber circle (A) was made up of a series of more substantial posts in comparison to the remaining five circles (Mercer

1981). As noted above the presence of such anomalies in post size may indicate that these multiple rings may not have been contemporary constructions. Analysis of the plan of ring (A) at Balfarg highlights the reality that posts (A11-A12 and A9-A10) form opposing double post alignments that may denote a possible entrance into the centre of this circle. It is therefore reasonable to suggest that ring (A) was the primary construction at this site enclosing a horse-shoe arrangement of posts that was made up by ring (C) (See figure 5).

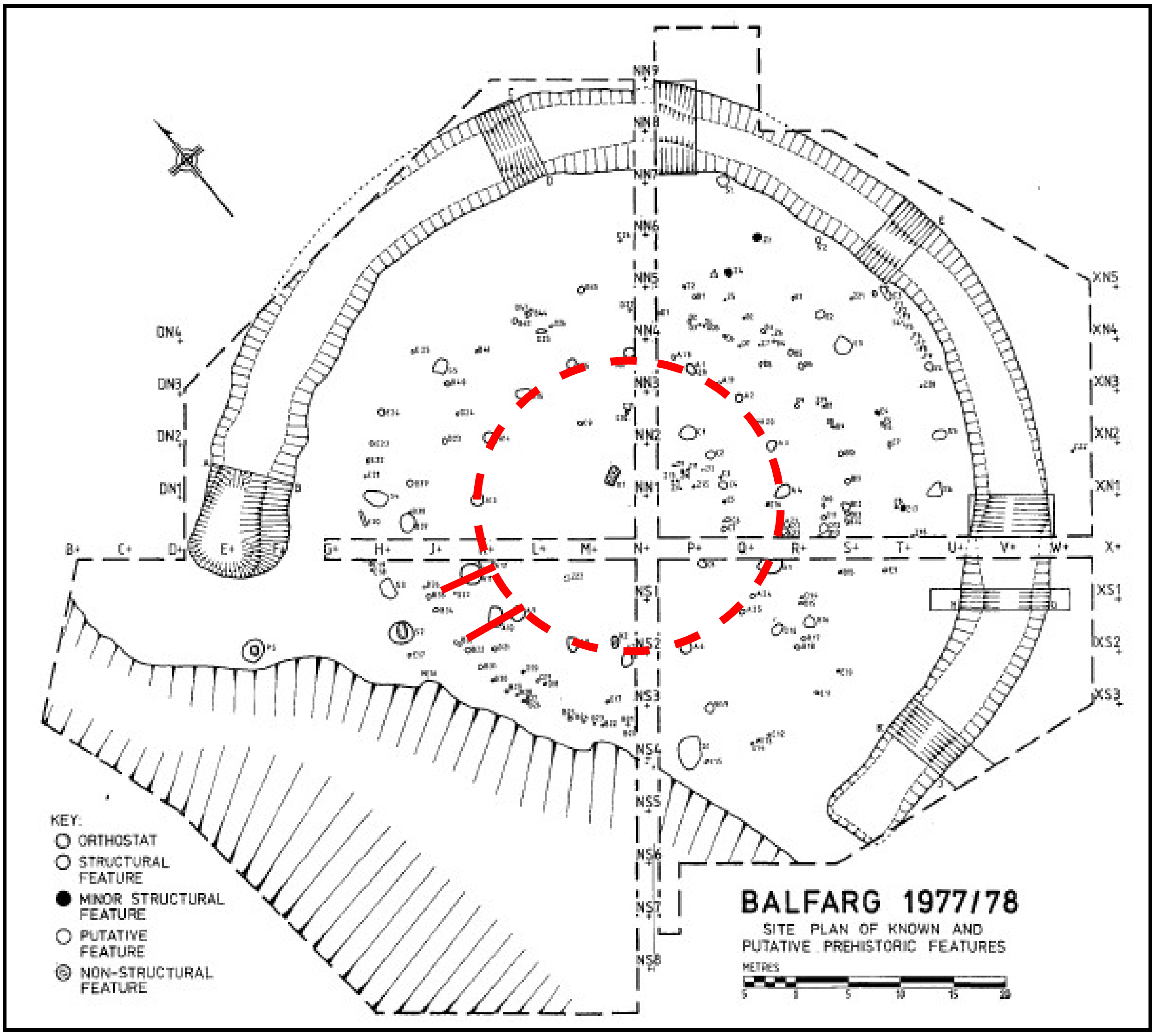


Figure 5. Plan of the timber circles at Balfarg. (After Mercer 1981, figure 40 with amendments). The plan shows the primary construction (Ring A), marked out in red.

The lack of recovered datable evidence from Balfarg makes it impossible to determine at what point in time the remaining four rings of timbers were erected. However the nature and lay-out of these remaining rings (which are mostly of slight posts and take the appearance of palisade type structures) suggest that these were later additions built to enclose the preexisting ring (A). Evidence to support this theory comes in the form of the fact that several of the posts relating to the outer circles block the entrance of the earlier circle (A). It could be the case that the posts of circle (A) were either still *in situ* or visible when the outer rings were erected as some of these outer rings appear to mirror (if not exactly) the alignment displayed by circle (A). However the level of destruction and erosion of the post-holes at Balfarg makes such a theory impossible to prove with any degree of certainty.

The importance of the data discussed above has often been overlooked to the extent that many previous interpretations of such arrangements of post-holes have been far too simplistic. It is apparent that in the case of the four discussed sites the uncovered double and multiple rings of post-holes did not represent one complex construction but rather correspond to a series of less intricate structures. The evidence from the discussed case studies is seemingly conclusive as it relates to four very different monuments in four separate locations. This may suggest that these observed sequences may be replicated elsewhere outside the considered study area. Such data makes it clear that the currency of some timber monuments was extensive and likely to span a period that is longer than the datable evidence suggests, possibly extending through several generations

The data from the analysed case studies, while insufficient to challenge the authority of the currently accepted categories of single, double and multiple rings, does call into question the means by which these structures may have evolved from one form to another as it is clear that some timber structures were the subject of continued alteration. Ultimately this suggests that the date ranges associated with the more complex timber rings in particular may actually identify the point in time at which these structures were altered rather than denote the introduction of a new architectural trend. Arguably such evidence has been identified at the site of Oakham, where multiple phases of construction (all of which contained the remains of what were believed to be a timber circle in various guises) were uncovered during excavation (Clay 1998). Had contexts associated with later phases not been observed to cut those relating to earlier activity at this site then arguably the site at Oakham may have been classified as a multiple timber ring as opposed to three separate structures (see site catalogue, Appendix III, for full discussion).

Patterns of development at double and multiple timber circle sites will require further investigation on a wider scale than can be covered by the remit of this study, nevertheless it has been possible during the examination of the selected case studies to test the currently accepted theory that proposes, timber structures will always pre-date the construction of henge monuments at sites where these two constructions are found to occupy the same location (Gibson 2005, 33-35). This review could find little evidence within the selected case studies to contradict this established sequence, despite the fact that some of the supporting evidence could be considered open to interpretation.

For example at Woodhenge (case study 15) the only means of substantiating the primacy of the multiple rings of timbers over the class I henge monument lies with the observation that the outer ring of posts (ring A) lies in very close proximity to the henge ditch. When the closeness of these two features is considered in conjunction with the likelihood that the posts associated with this outer ring were raised from the outside inwards (Gibson 2005) (see case study 15 for full discussion) it would mean that those erecting the outer ring of posts at Woodhenge would have had to stand in the henge ditch had it already been excavated prior to the construction of the outer ring of timbers (see figure 6).

Similar evidence was also observed during the compilation of the North Mains case study (No 11). At North Mains all the post-ramps associated with timber circle (A) were found to lie on the outside of the post-holes, which again suggests that the timbers were erected from the outside inwards and that those undertaking this task would experience the same restrictions of those noted at Woodhenge on account of the proximity of these post-ramps to the inner lip of the henge ditch (Barclay 2005; Gibson 2005). While it is feasible that the architectural and logistical prowess of the builders of these two monuments may have been substandard it would seem more likely that these data demonstrate the primacy of the timber rings over the respective henge monuments.

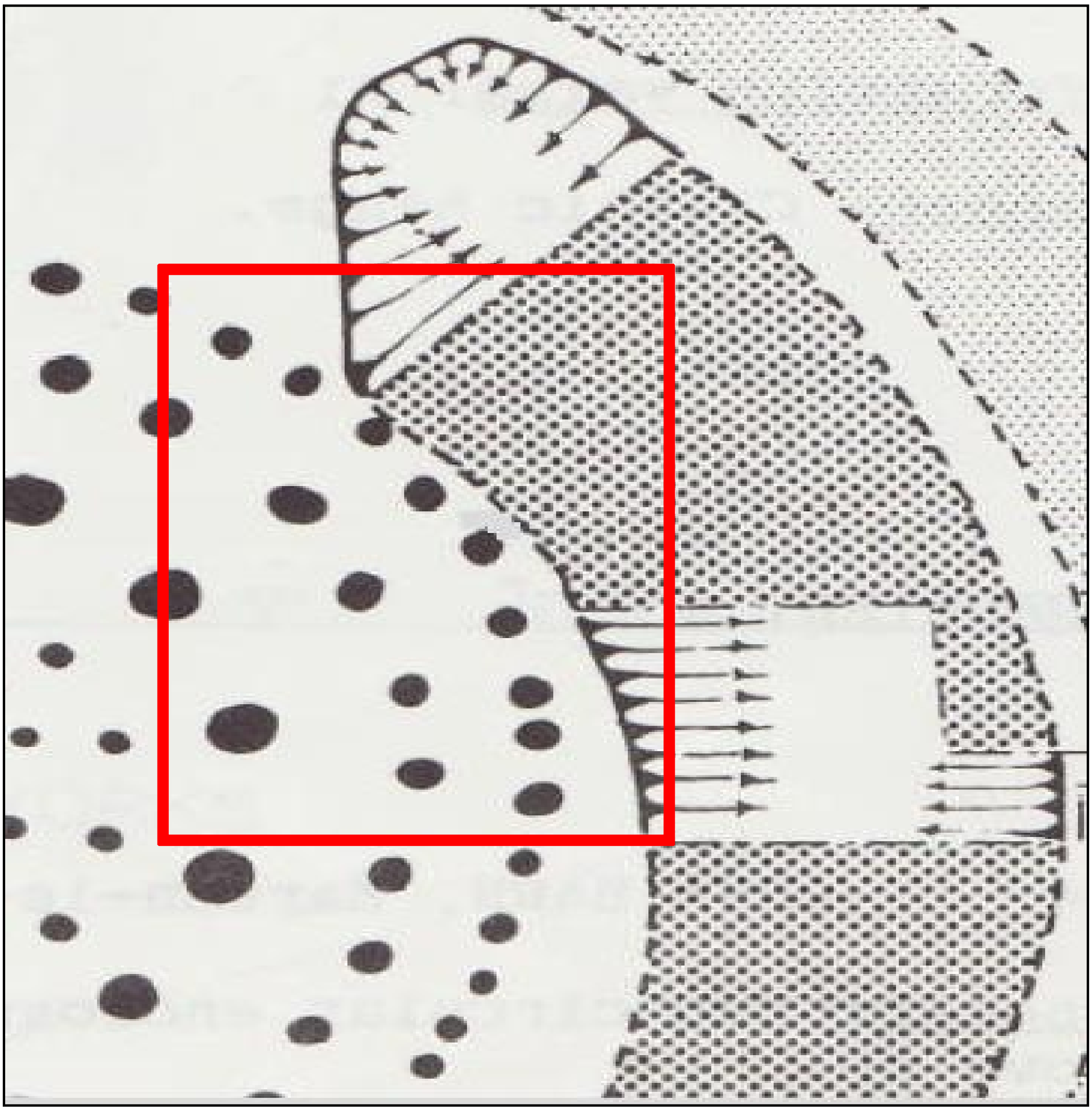


Figure 6. The North-Eastern section of Woodhenge. (From Harding & Lee 1987, with amendments). The plan demonstrates the closeness of the outer ring of timbers and the inner lip of the henge ditch.

This inferred sequence at North Mains has been confirmed beyond doubt by the radiocarbon data that was generated as a result of a contemporary dating programme (Sheridan 2002). This evidence relates to a sample of bone that was recovered from a burial that was found sealed beneath the henge bank (burial A) (GrA-24007) *circa* 2196-1920BC. When this date (which was recovered from a context that clearly predates the construction of the henge) is compared to (GU-

1354), which is a sample of oak charcoal from the primary fill of posthole A5 and produced a date of *circa* 2900-2200BC, it proves that timber circle (A) did indeed pre-date the construction of the henge by as much as several centuries (Gibson 2005). Despite the accuracy of sample (GU-1354) remaining questionable, it still remains feasible to envisage a scenario at North Mains where a timber ring stood in isolation for a prolonged period before possibly falling into disrepair and the remains (if still visible by this point in time) ultimately being encircled many centuries later by a class II henge monument.

The North Mains data seemingly confirms the likelihood that anomalies within the contextual data represent more than a series of architectural failings on behalf of those who constructed these monuments but rather demonstrate evidence that can be used to reconstruct chronological sequences. Such data arguably adds support to theories that have previously recognised similar anomalies within the contextual data at other sites. At Arminghall the post-ramps of the timber horse shoe all face towards the south, suggesting that the timbers were brought to the site from this location. The alignment of these post-ramps is in contrast to the positioning of the henge entrance which is located in the south-west section of the ditch and bank circuit (see figure 7). It has been suggested that had the henge monument been the primary construction at Arminghall then the builders of the timber monument would have taken the posts into the centre of the henge *via* the henges ample entrance (Gibson 2005).

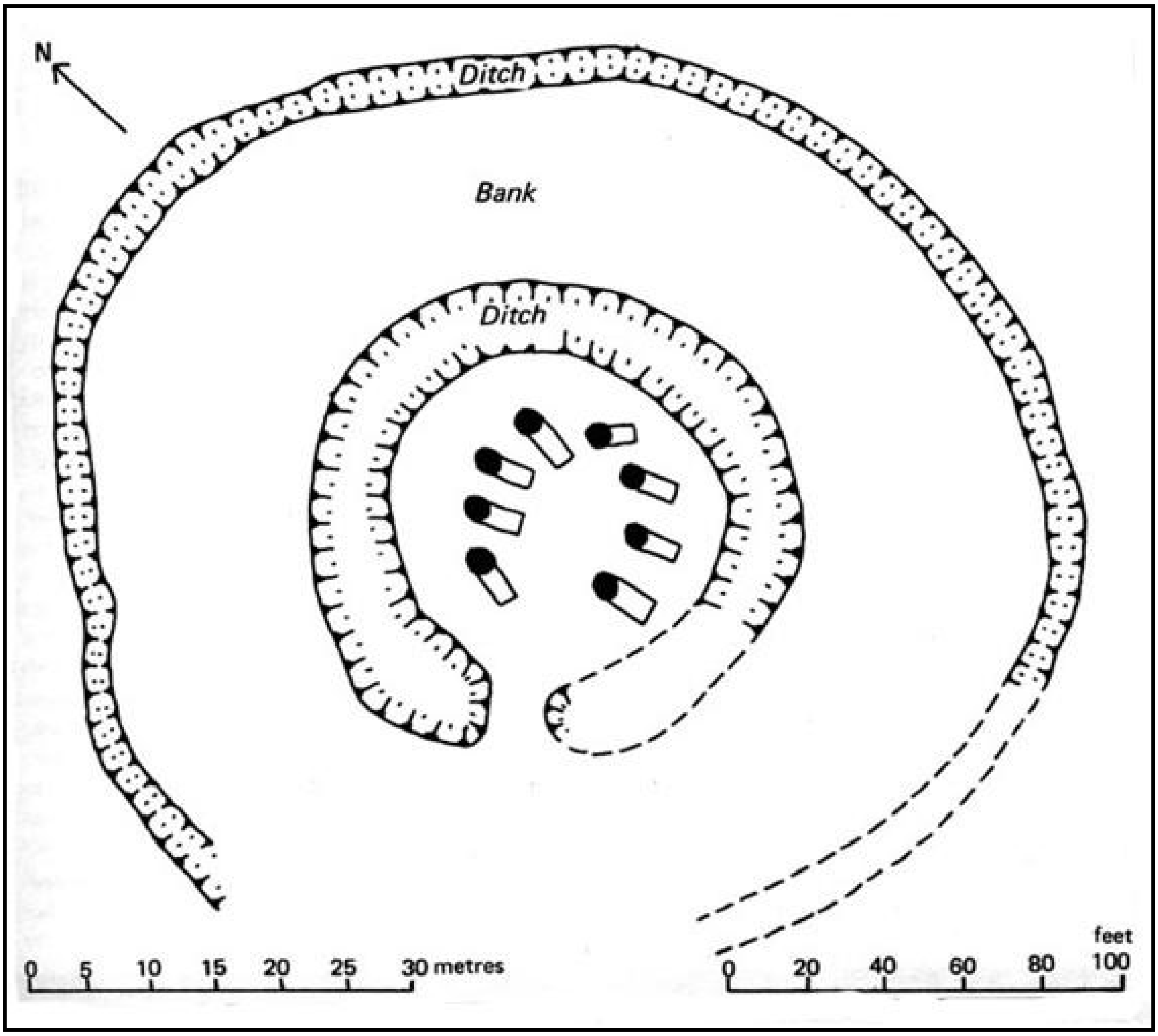


Figure 7: Plan of the Arminghall Henge and Timber Horseshoe. (From Clark 1936.) The plan clearly shows the misalignment between the post-ramps (south facing) and the henge entrance (south-west facing).

The findings of this study agree with such a hypothesis and also concur with the idea that such a practice of entering through the pre-existing henge entrance would arguably be reflected in the alignment of the post-holes to the extent that they would all have run along a Southwest – Northwest alignment. Equally it is indeed clear that this route *via* the henge entrance would be undoubtedly far more economical and effortless than the alternative of traversing unnecessary obstacles, such as dragging or lifting the posts over the bank and through the two ditches of the henge, had they already been *in situ*. The primacy of the timber horseshoe at Arminghall can also be demonstrated, as has already been highlighted during discussions relating to the sites of North Mains and Woodhenge, by the fact that the post-holes and ramps are also in very close proximity to the inner lip of the henge ditch (see figure 7) (Gibson 2005).

Evidence to support the primacy of timber circles over henge monuments at composite sites was found not to be limited to such data, owing to the reality that in some cases direct stratigraphic interactions had been previously observed. Examination of the evidence from Milfield North (case study 10) for instance showed that during excavation elements of a timber circle had been found sealed beneath the remains of the bank of a class II henge monument (Harding 1981). The evidence itself comes from the post-pipe of shaft three which had clearly been overlain by a layer of re-deposited material that had slid from the sides of the henge bank, possibly as a result of erosion or maybe as a consequence of slippage that occurred at the point at which the earth was being excavated from the henge ditch to form the bank (See figure 8) (Harding 1981). As this material from the bank could only have arrived in this position after the post (that was originally housed in shaft III) had either been removed or more likely rotted *in situ* the findings of this study are in complete agreement with the theory that proposes the primacy of the timber circle over the class II henge monument at Milfield North (Gibson 2005).

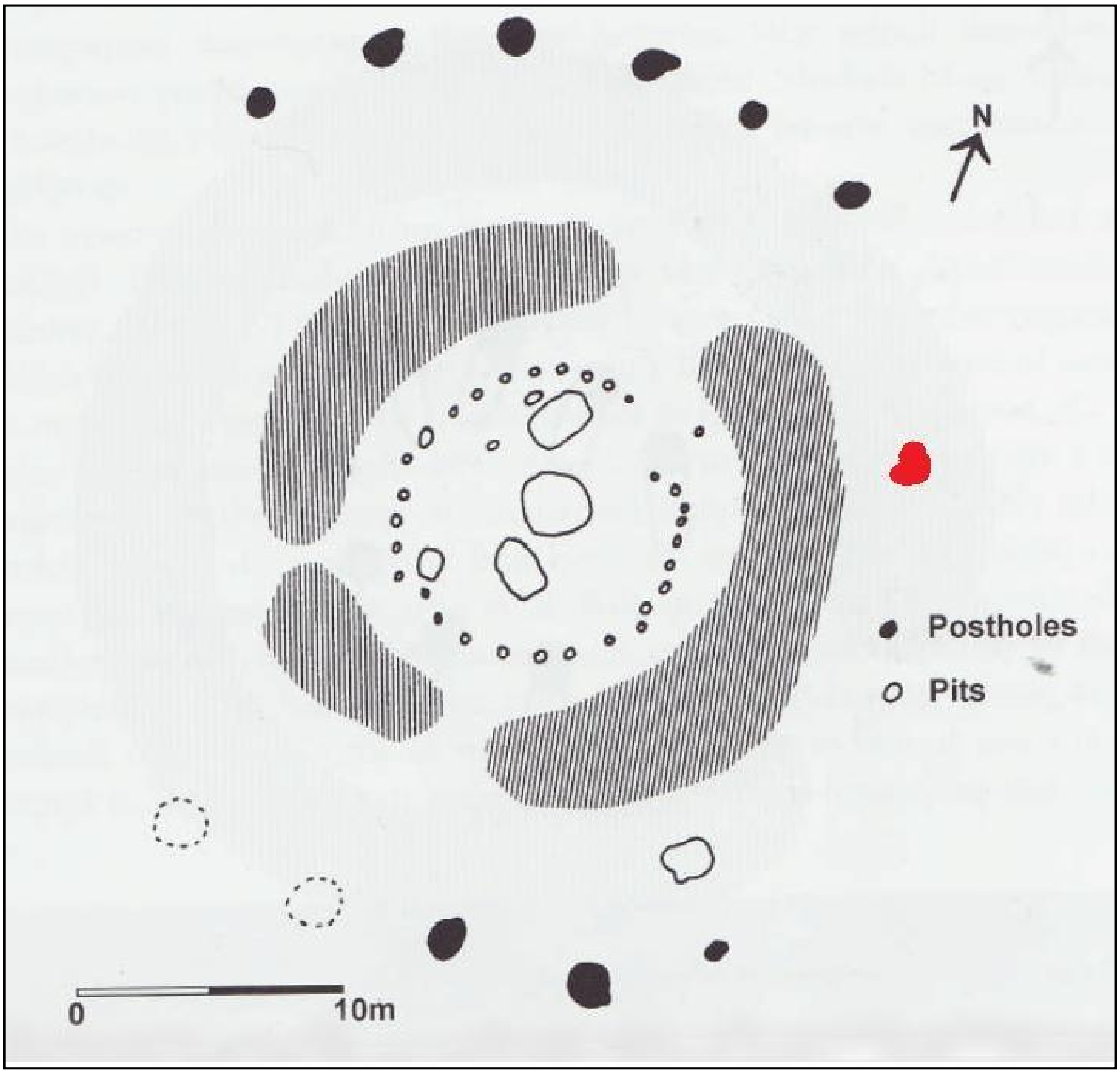


Figure 8: The Timber circle and class II Henge monument at Milfield North. (From Harding 1981). The plan demonstrates how the line of the timber circle would have run directly under the line of the henge bank with post hole 3 (marked in red) being covered completely.

Analysis of the 15 sites selected for inclusion within this study highlights the fact that there is a large amount of data within the archaeological record that does indeed appear to confirm the primacy of timber structures over henge monuments. The validity of such data has recently been questioned during excavations at the site of Broomend of Crichie (case study 4). These excavations at Broomend of Crichie have suggested that the remains of a timber circle that had been found to lie outside the southern entrance of the class II henge monument may have post-dated the earthen bank and ditch or at best been contemporary with it (Bradley 2011). Such a theory is supported by the fact that the ring of timbers is aligned with the southern entrance of the henge monument while also impinging upon the hypothetically extended line of the stone avenue that is thought to pre-date the henge monument (see case study No 4). Such a sequence is supported by the radiocarbon evidence from this site which appears to conclusively show that the henge pre-dates the construction of the timber circle possibly by as much as three centuries (Bradley 2011, 40). This is due to the reality that the two dated samples of birch and hazel charcoal from the fill and weathering cone of the same post-hole associated with the timber circle (OxA-18252) *circa* 1878-1665BC and (OxA12851) *circa* 1684-1529BC post-date the collection of dates from samples of carbonised heather that derived from the old land surface that was found sealed beneath the henge bank and provided a *terminus post quem* for its construction to the period *circa* 2150-1900BC (Bradley 2011, 60-61).

Such data from Broomend of Crichie would appear on first inspection to conclusively dispel the theory that suggests timber circles will always be proven to pre-date the construction of henge monuments at composite sites. However upon closer inspection this study noted the fact that despite the timber circle being located both within the framework of the stone avenue and upon an observable alignment with the southern henge entrance it was also clearly positioned upon its own unique alignment. The timber circle has a porch arrangement situated in the north-east section which suggests that as opposed to being purposely positioned directly in line with the southern entrance of the henge the timber circle is actually aligned upon its own north-east – south-west axis (see figure 9).

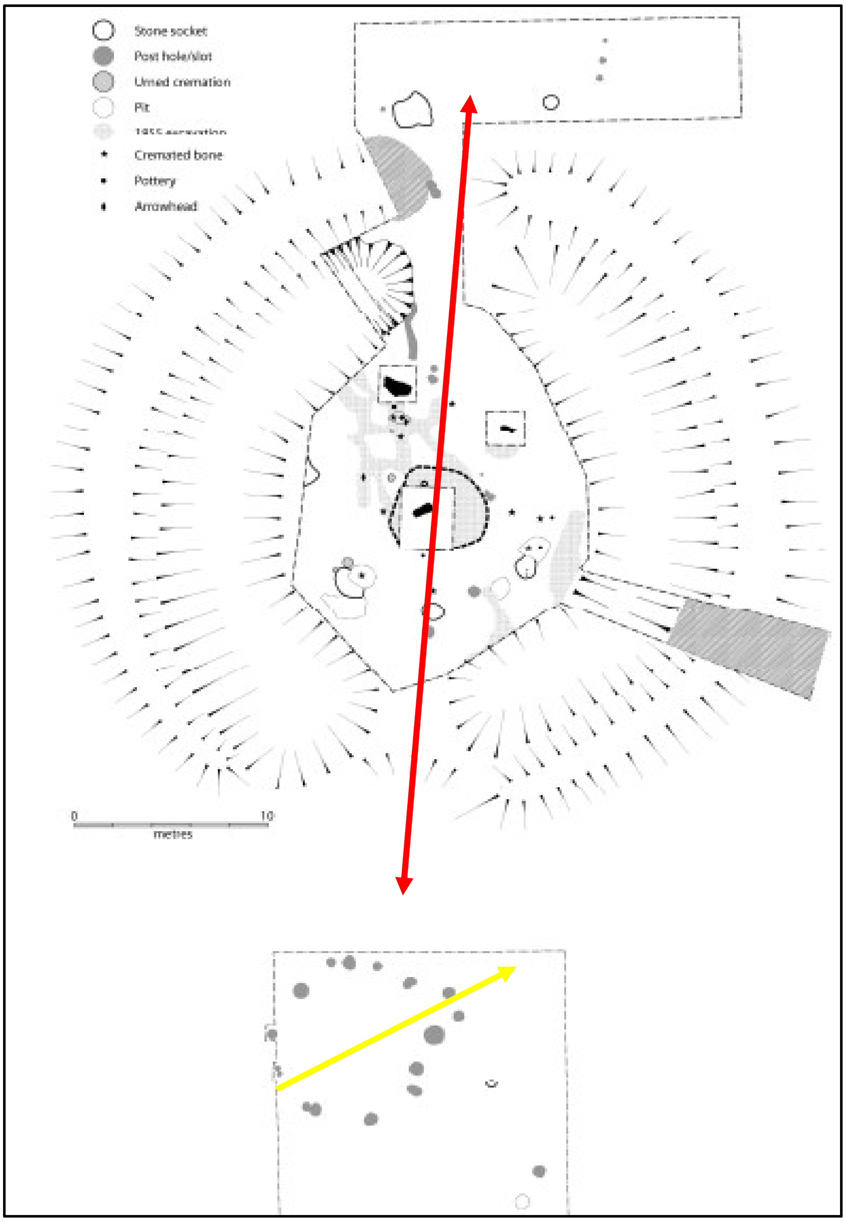


Figure 9. Plan of the constructed features at Broomend of Crichie. (From Bradley 2011, illustration 1.35 with amendments). Arrows highlight the misalignment of the Class II Henge and Timber Circle entrances.

This misalignment therefore points to the possibility that the site of Broomend of Crichie, although appearing upon first inspection to be a composite site, was actually a series of individual monuments constructed in close proximity to one another. This review is therefore of the belief that such data does not adversely affect the reliability of the timber circle – henge monument sequence as it appears likely that Broomend of Crichie is yet another example that demonstrates how these monuments continued to be built in isolation throughout the study area despite other monumental forms pre-existing within their environs.

Such evidence is supported by the reality that contemporary excavations at the site of Durrington Walls (case study No 7) have uncovered new evidence that continues to support the timber circle – henge sequence (Parker Pearson 2007). Here the henge bank was proven to have been heaped upon an historic ground surface upon which a number of Neolithic houses and an earlier avenue once stood (Parker Pearson 2007). Analysis of the avenues orientation and the layout of the numerous houses demonstrate that there is a clear relationship between these features and the previously known multiphase southern timber circle. When this fact is considered in conjunction with the reality that earth from the henge bank was observed to seal contexts associated with the avenue and houses it proves the likely primacy of not only the southern timber circle (Parker Pearson 2007), but also the northern timber circles given the comparable date ranges between these two timber structures (Wainwright & Longworth 1971).

Evidence to support this theory can also be found through the analysis of the ceramic finds at Durrington Walls. It is clear from the recent excavations (Parker Pearson 2007), and Wainwright's previous investigations (Wainwright & Longworth 1971) that large quantities of Grooved Ware were recovered from phases I & II of both the Southern and Northern timber circles and the contexts associated with the newly discovered dwellings. This suggests that these timber circles and houses all had a currency within the period dominated by this ceramic tradition. In comparison, while sherds of Grooved Ware were also recovered from the primary silts of the henge ditch the quantity was far less substantial to the extent that it appeared to be residual material (Wainwright & Longworth 1971). Such evidence ultimately suggests that the henge ditch was excavated towards the end of the currency of this ceramic tradition with the sherds of Grooved Ware possibly entering the primary silts as a result of slippage or erosion from the sides of the ditch.

This timeframe is seemingly confirmed by the fact that what is believed to have been a fragment of Beaker was recovered from beneath the henge bank by Farrer in 1917 (Farrer 1918). While Farrer's interpretation of the Beaker fragment may be open to interpretation, the accuracy of his identification does appear more reliable when the evidence generated by the 2005 excavations is considered. This is due to the fact that the only sherds of Beaker Ware Pottery recovered from within the confines of the southern timber circle came from a series of recut pits that had been excavated after the posts had already decayed (Parker Pearson *et al*. 2007). These excavations also recovered further significant quantities of Grooved Ware from primary contexts associated with the southern timber circle and dwellings. Such evidence unquestionable points to the likelihood that the construction and occupation of the timber circle and henge were indeed associated with two different ceramic forms and thus were of different age.

The radiocarbon determinations also appear to agree with the suggestion that the series of timber circles at Durrington Walls were the primary constructions at this site. Analyses of the collection of dates derived from contexts associated with the henge monument (see Appendix III) suggest that the henge ditch was excavated *circa* 2500-2450BC. Such a point in time coincides with the earliest dates associated with Beaker pottery (Sheridan 2007), a ceramic form that was clearly introduced to this site around the same time that the henge was being constructed. The primacy of the timber circles at Durrington Walls is further suggested by determinations such as (OxA-14976) which was a sample of antler from a re-cut pit that had been cut into the top of posthole (099) of ring (2C) that dated to the period *circa* 25702350BC (Parker Pearson *et al*. 2007, 631) and (OxA-14801) *circa* 2830-2470BC which was a sample of articulated pig bone from a pit that had been dug into the corner of a house after it had been abandoned (Parker Pearson *et al*. 2007, 629-633). Together such dates clearly demonstrate that the timber circles and dwellings at Durrington Walls predated the construction of the henge monument by a considerable period of time, possibly by as much as several centuries when the fact that this site bore witnesses to the construction of several timber circles in various guises prior to being enclosed within a large-scale henge monument.

Supporting evidence to that noted during the analysis of the 15 case studies comes in the form of the ceramic evidence from the site of Coneybury Hill which also enabled the primacy of the timber rings over the class I henge monument to be established. At Coneybury Hill the upper fills of the post-holes largely produced sherds of Grooved Ware during excavation, in comparison to the upper primary fills of the henge ditch which in addition to similar isolated sherds of Grooved Ware also contained later Beaker sherds (Richards 1990). This suggests that the henge ditch was excavated during the period at which there was a transition between these two ceramic traditions, where as the posts of the timber circle had either already rotted or been removed prior to this point in time. This theory is supported by the radiocarbon evidence as (OxA-1408) *circa* 3089-2475BC which was a sample of animal bone from the primary silts of the henge ditch post-dates (OxA-1409) *circa* 3354-2781BC, a sample of animal bone from pit 1601 (Richards 1991). However it is important to note this replacement may have occurred within a relatively short period of time, possibly while the remains of the timber circle were still visible. Assessment of the case studies reviewed for the purposes of this study that contained the remains of timber circles and henge monuments could find no definitive evidence that was able to contradict the currently accepted series for these two monumental forms with any degree of certainty.

In many cases the identification of evidence that can be used to substantiate the sequence of timber circle – henge monument has proved effortless as at sites like Milfield North and North Mains unquestionable stratigraphic and datable evidence has been found to exist (Harding 1981; Barclay 2005). Even the most disputable of evidence (such as the proximity of post-ramps/holes to the inner lip of several henge ditches) in the opinion of this study is sufficient to support, with a significant degree of confidence, the idea that at composite sites where the remains of rings of posts and a henge monument of any class are found together the timber circle is always the primary construction.

Arguably the most conclusive aspect of the currently accepted chronologies for these three monumental forms that was considered by this study was the process of 'lithicisation' (Gibson 2005), as the replacement of rings of timbers by those of stone could be proven beyond reasonable doubt. This was due to the fact that at many sites stone-holes could be clearly demonstrated to have cut earlier post-holes. For example at Temple Wood North (case study No 14) it was noted that the remains of a single ring of timbers consisting of up to 16 posts had been found to lie beneath a known stone circle (Scott 1988). Theories that propose a combined timber and stone structure (Scott 1988) are rejected by this study on account of the fact that several of the sixteen stone-holes were observed to cut or seal post-holes belonging to the earlier ring of timbers. This disturbance was observed within sockets 3, 5, 15 and probably 1, 2, 10, 11, 12 and 13 all of which displayed signs of holding posts from the timber circle in the first instance and stones relating to the stone circle in the second (Scott 1998).

Such a transition from timber to stone has also been previously documented at the site of Machrie Moor I and XI (case study 9). At Machrie Moor excavations highlighted the reality that the stone circles had been raised directly over the location of two earlier timber monuments (see figure 10) (Haggarty 1991, 60-76). This is due to the fact that during the excavation of site I it was discovered that the packing of post-hole F211 that formed part of the main ring of timbers had been rearranged to form part of the foundation for stone-hole 9 (Haggarty 1991, 60-76). The disturbance of post-hole F211 could only have occurred if the post was no longer *in situ* when stone 9 was being set. A similar sequence is proposed for site XI at Machrie Moor also on account of its close proximity of to site I and the fact that similar structures were observed at both sites. This is in spite of the actuality that no stratigraphic interactions were uncovered between the constructed features at this site.

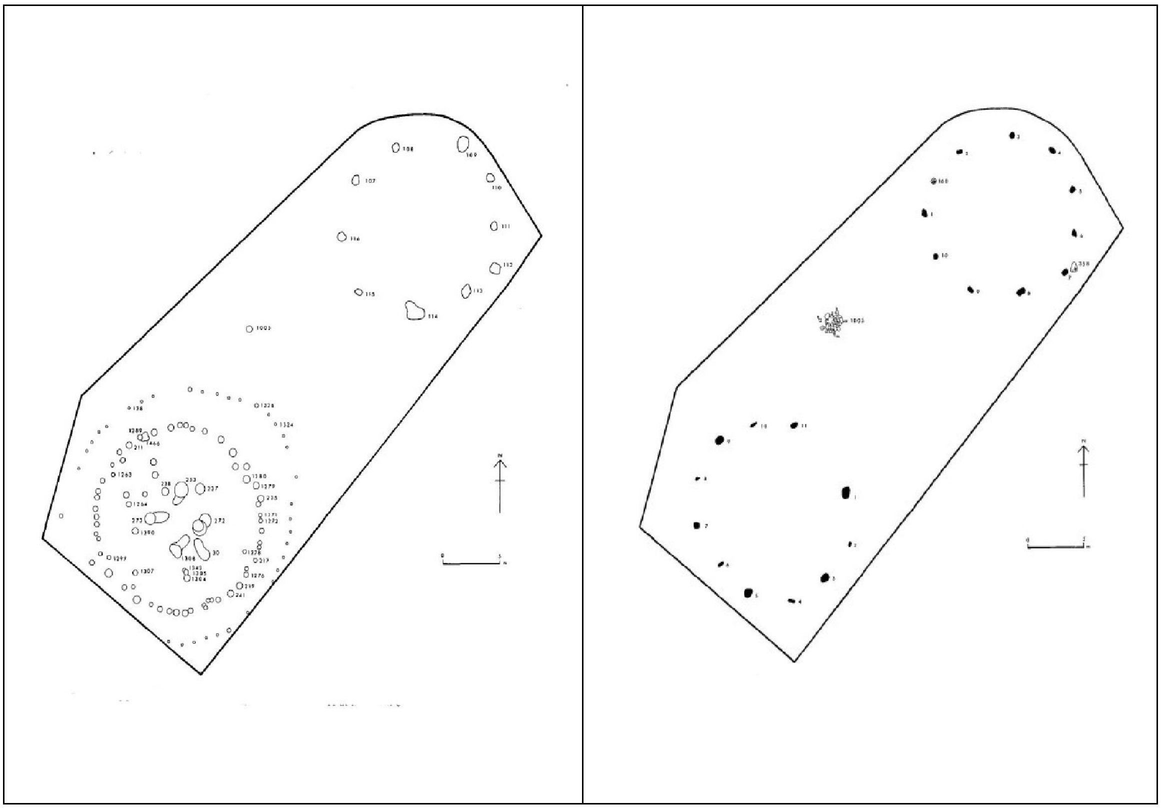


Figure 10: Plans of the Timber Circles and Stone Circles at Machrie Moor; sites I & XI. (From Haggarty 1991, figures, 5 & 13).

The findings of this study also agree with the theory that the replacement of the rings of posts by ones of stone was unlikely to have happened immediately at Machrie Moor owing to the presence of a period of agricultural activity (See figure 11).

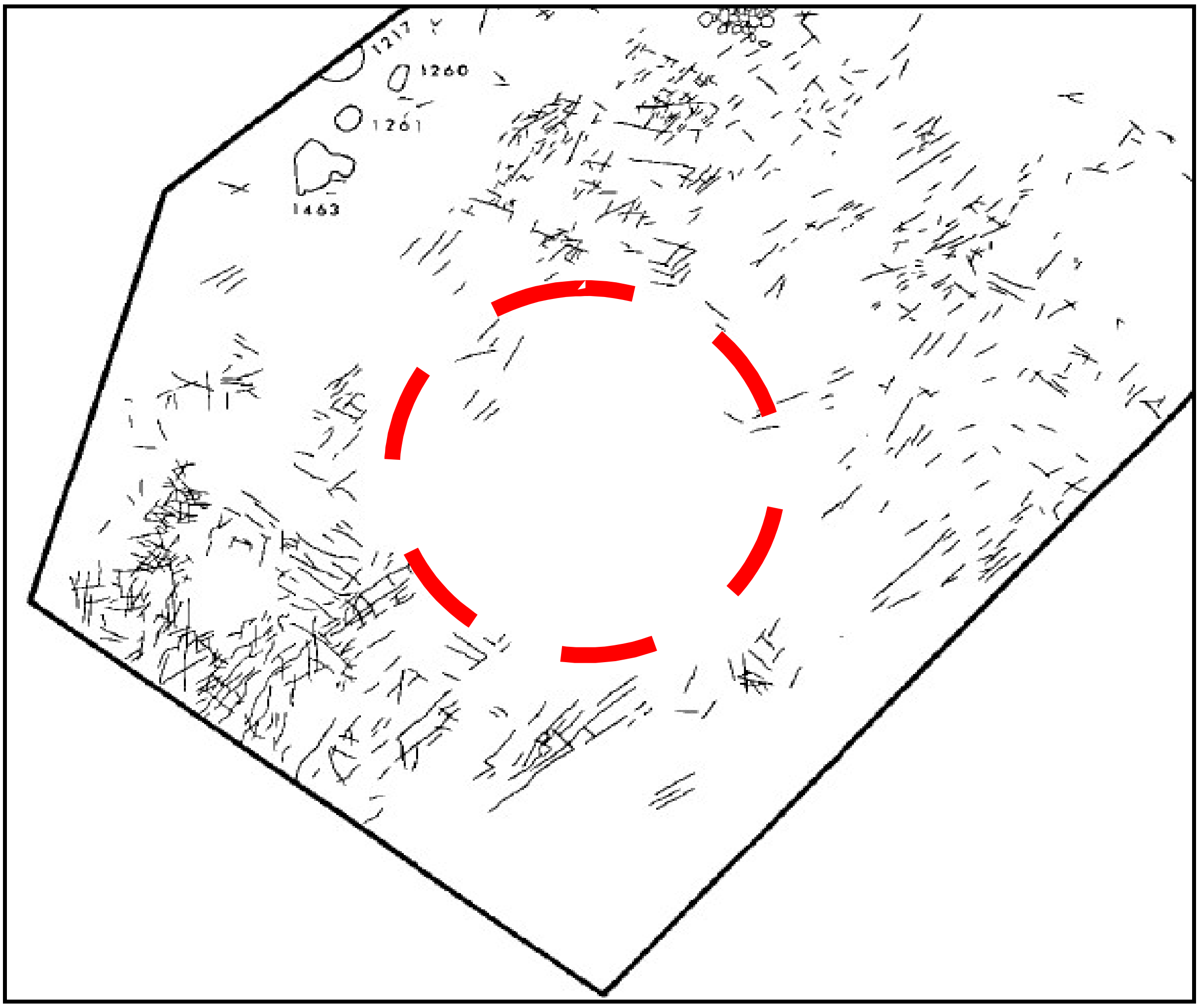


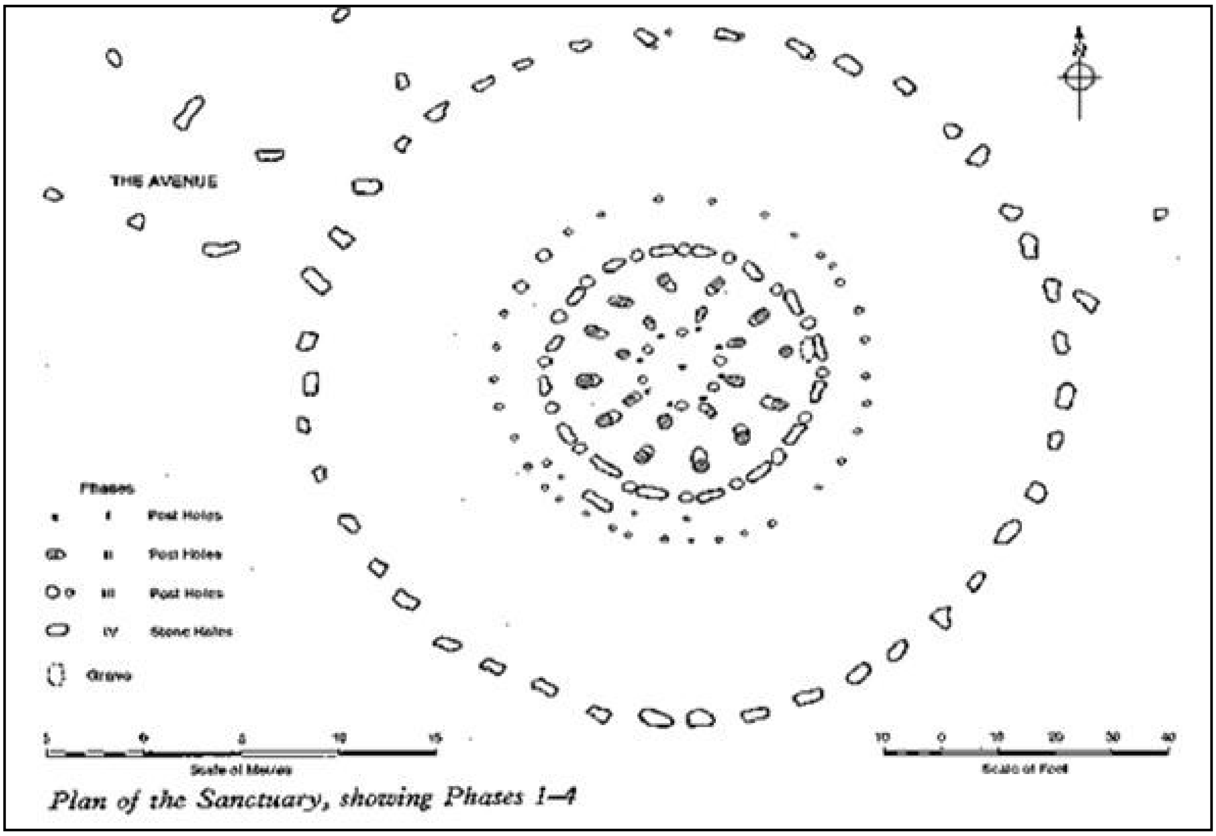
Figure 11: The agricultural activity at Machrie Moor. (From Haggarty 1991, illustration 8 with amendments). Plan shows how the later agricultural activity respected the original area occupied by the timber circles.

This interlude was proven during excavation on account of the fact that post-holes, such as F 1276 and F 1297 associated with the main ring of timbers at site I were overlain by stakeholes belonging to the later stake-lines. In addition several post-holes were found to be sealed below patches of ardmarks (Haggarty 1991, 67-72). The longevity of this break in the practice of monument building can be more accurately established by analysis of the ceramic evidence. The abandonment of the site I timber circle was unquestionably associated with Grooved Ware as sherds were recovered from the fills of post-holes, while a more domestic assemblage was recovered from pits associated with the aforementioned agricultural activity such as Impressed Wares and sherds of Beaker that were not associated with any known funerary activity at this site (Haggarty 1991, 67-72).

Despite the proven interlude between the two phases of construction at site I and XI the stone circles were constructed directly above the earlier timber circles to the extent that the later monument seemingly respected the earlier post-holes. It has been suggested that this may have been achieved as a result of the fact that the timbers were still observable when the stones were put in place. Such a theory carries a significant degree of credence as the agricultural activity does largely respect the area enclosed by the ring of timbers. This would suggest that the timber and stone phases were not separated by an elongated period of time (Bradley 2002). However it is equally as viable to suggest that the stone circles were constructed within a relatively short period of time after the timber circles fell into disrepair as it may have been the case that at Machrie Moor timbers were replaced by large boulders that merely sat on the ground surface before being encased in a stone-hole at a later date. However such a theory is merely supposition.

The identification of such data led this study to seek comparable and supporting data within the site catalogue. It was noted that at the site of the Sanctuary (Figure 12) the remains of seven rings of timbers (rings A-G) and two rings of stones (rings A & C) had been identified. Ring A was considerably larger *circa* 40m in diameter and enclosed rings (B-G) which were much smaller and divided into four symmetrical sections with equally spaced ‘aisles’ (Cunnington 1931). It is clear that there is a considerable degree of conformity between the stone holes and the post-holes of ring (C) to the extent that the stone holes appear to respect those associated with the timber circle. Scrutiny of the arrangement of features associated with ring (C) enable the thought that the ring of stones and posts were contemporary constructions to be rejected as the proximity of the large timbers and stones to one another would have denied access to the inner rings of posts (Pollard 1992; Gibson 2005).

This study therefore agrees with the suggestion that the stones of ring (C) were positioned after the timber circle had either been abandoned or was no longer in use and that it may be the case that the rotting remains of the earlier timber circle may still have been visible when the ring of stones were erected (Gibson 2005). However the disturbance caused by the pre-existing posts would also arguably have been sufficient to enable the placement of the stones in such close proximity to the pre-existing post-holes. Unlike ring (C) the primacy of the ring of timbers that made up circle (A) over the stones of the same ring can be proven beyond doubt. This is due to the reality that several stone holes (including holes 7, 8 and 9) of ring (A) were observed to seal a number of earlier post-holes relating to a timber circle during excavation (Gibson 2005). Such data is conclusive in proving the primacy of the timber circles over the stone rings at the Sanctuary as the sealing of the post-holes could only have occurred after the associated timber circle had been removed.



Plan of the Sanctuary, showing Phases 1–4

Figure 12: The multiple Timber Rings and double Stone Circle at the site of The Sanctuary. (From Cunnington 1931). The plan shows the close proximity of features associated with timber circle and stone circle (C) and the way in which the stone-holes of circle (A) clearly cut the post-holes of the same ring.

As discussed above it was seemingly common place for timber circles to be replaced by a stone circle, however at the site of Moncrieffe the ring of posts was replaced by not one, but two subsequent stone circles (Stewart 1985). Examination of the evidence by this study shows that three phases of activity were uncovered within the centre of the henge; a ring of nine post holes, a stone circle of eight stones with an accompanying kerbed ring-cairn and finally a larger ring-cairn that was surrounded by a recumbent stone circle, consisting of eight uprights and low horizontally placed stones between four of them. The primacy of the ring of timbers over the two stone circles and associated features can be proven on account of the fact that stone-hole 4 (which was associated with the first stone circle at Moncrieffe) clearly cut the infill of post-hole 9 of the timber circle (Stewart 1985). After an unknown interval the initial stone ring was replaced by a larger ring-cairn and recumbent stone circle. Many of the stone-holes associated with this larger later recumbent stone circle cut the stone-holes associated with the smaller circle such as in stone-hole 2 of second circle where an earlier shallower stone-hole relating to the initial stone circle was uncovered. Such evidence proves that at Moncrieffe the timber circle predates the construction of both stone circles which conforms to the sequence noted at the majority of composite sites.

Similarly this review noted that the primacy of a timber circle over two stone circles was also identified during the 1956 excavations of Croft Moraig by Piggott & Simpson (Piggott & Simpson 1971) during the compilation of case study No 6. However more recently this sequence has been rejected in favour of one that sees the stone circle pre-dating the erection of the ring of posts (Sheridan 2003, A & B) (see case study No 6 for full discussion). However a review of the Croft Moraig data by this study questions the accuracy of the chronologies postulated by both these studies (Piggott & Simpson 1971) (Bradley & Sheridan 2005) and proposes a building sequence that consists of ring of posts – stone circle with accompanying outliers – central cairn/mound and shallow ditch – stone oval. This sequence was formulated on account of the fact that for while the timber circle and stone circle do indeed appear to share a similar alignment and axis the primacy of the ring of posts can be demonstrated on account of the fact that the porch of the timber circle lies in very close proximity to stone 4 of the stone circle. This is in spite of the fact that there was sufficient area between stones 4 and 7 in which to fit the timber porch comfortably (see figure 13).

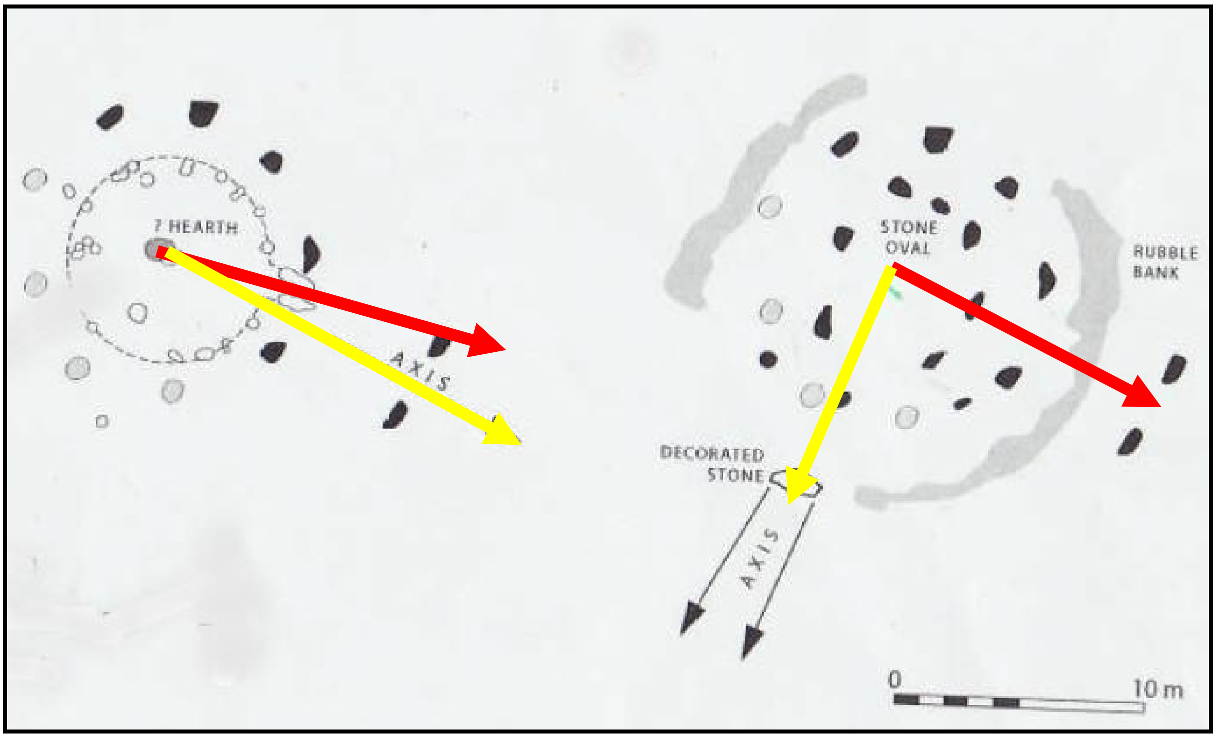


Figure 13: The misalignment of features at Croft Moraig. (From Bradley & Sheridan 2005, with amendments). The plans clearly show the misalignment between the timber circle and initial stone circle (left) & the misalignment between the stone circle and later stone oval (right).

Arguably had the stone circle been *in-situ* prior to the construction of the ring of posts a more architectural practical approach would have been adopted with regards to the layout of the timber porch. It would therefore seem more likely that the timber circle or 'hut' as it has been referred too (Bradley & Sheridan 2005), was the primary construction at this site. This circle was subsequently removed and after a short period of time (if not immediately) the stone circle with its accompanying outliers (that may have been constructed to reflect the porch arrangement of the original structure) was erected upon a similar but not exact alignment. In the opinion of this study this theory is supported by the fact that ceramics associated with the destruction or 'levelling' of the timber circle actually dated to the Later

Bronze Age (Sheridan 2003, A & B), as opposed to the Neolithic as assumed by Piggott and Simpson during their 1956 excavation (Piggott & Simpson 1971), as stone circles have a strong currency during this period which ultimately makes the idea of such a quick replacement theoretically feasible and would explain why the stone circle had a similar alignment to the earlier timber circle.

It is clear that the construction of the mound/cairn and shallow ditch inside the stone circle completely changed the axis/alignment of the site to one that focused upon a south-western alignment (See figure 13). This feature can be proven to post-date the two earlier structures on account of the fact that the ditch blocks the original alignment of the ring of stones and seals the earlier post-holes. The new alignment was later adopted by a stone oval that was also erected within the central area of the stone circle and directly over the cairn. Additional evidence for the primacy of the stone circle over the stone oval comes in the form of the fact that it was proven during excavation that the stone oval was encircled by a rubble bank which was on the same alignment and ran between the stone circle and its two outliers, ultimately separating these two features from one another (Bradley 2011).

The findings of this study also question the accuracy of the currently accepted sequence for the site of Strichen (case study No 14). Evidence put forward by Phillips *et al*. 2006 to suggest the primacy of the recumbent stone circle over the timber ring relies upon the decorated stone, recovered from post hole (f17), forming part of a grave cover for one of the central stone lined graves (f23) that the excavators believed to be contemporary with the stone circle. This theory is further supported by the authors of the excavation reports belief that the observable alignment between this decorated stone (in the post packing of (f17), the central post of the timber circle and the recumbent stone could not have occurred had the stone circle not been the primary construction at this site (Phillips *et al*. 2006).

While such an interpretation of the contextual data observed at Strichen is indeed feasible it is rejected by this study on account of the fact that there are numerous variables that may have restricted its accuracy. For example even though there does indeed appear to be an observable alignment between the recumbent stone, the central post and the decorated stone (see figure 14) there is no evidence to prove that this was a deliberate act (see case study No 13 for full discussion). Equally the fact that the stone circle in no way respects the layout of the earlier ring of posts to the extent that the surviving post-holes were found to be positioned off centre and aligned towards the north-eastern section of the area enclosed by the stone circle rather suggests a timber circle – stone circle sequence not the reverse.

In addition even though grave (f23) lies in close proximity to the central post, it by no means makes these two features related. This is due to the fact that grave (f23) was cut by the central cairn which is believed to be associated with the recumbent stone circle (Phillips *et al*. 2006) which would suggest that the two graves were later additions to the stone circle, not the timber circle as was originally promulgated. Therefore this means that the decorated stone did not originate from the grave and that the graves close proximity to post (f80) was more likely to have been a consequence of the site being reused over a prolonged period rather than a result of these two features being contemporary. In light of the discovery of such evidence by this review it is reasonable to assume that the currently accepted sequence proposed by Phillips *et al.* 2006 is inaccurate.

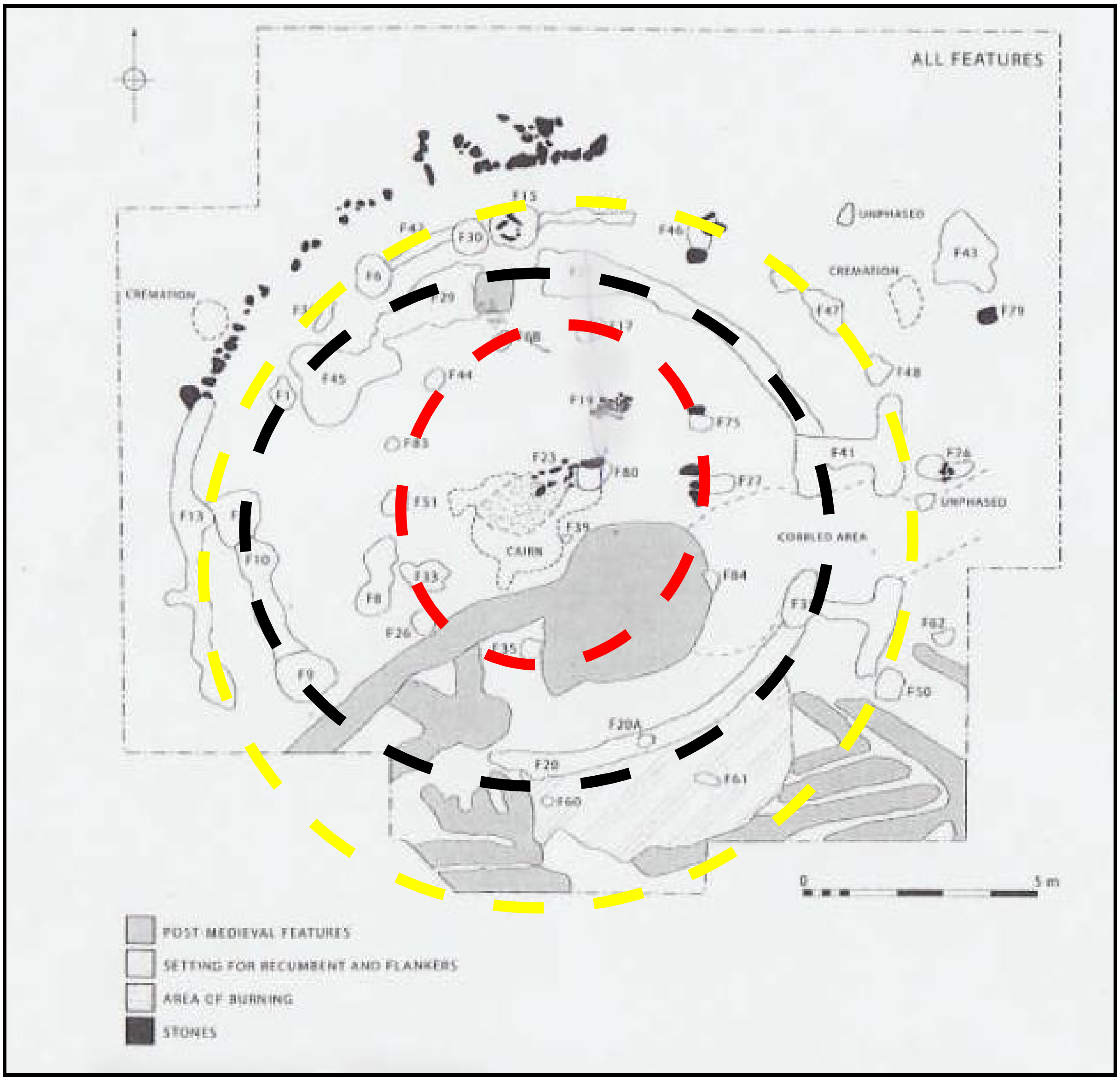


Figure 14: The constructed features of the site of Strichen. (From Phillips *et al*. 2006, with amendments). Plan shows the outline of the primary timber circle in red, the secondary recumbent stone circle in yellow and the later round house in black.

Consequentially this study proposes a more conventional chronology for the site of Strichen. Arguably the primary construction was a timber circle consisting of a central off centre post that was encircled by nine outer posts, the evidence for an additional post in the south-eastern section being lost as a consequence of later activity at the site. At a later date this timber circle was seemingly dismantled resulting in the posts being removed. The removal of the timbers seems likely to have coincided with the construction of the recumbent stone circle, rubble bank and central cairn.

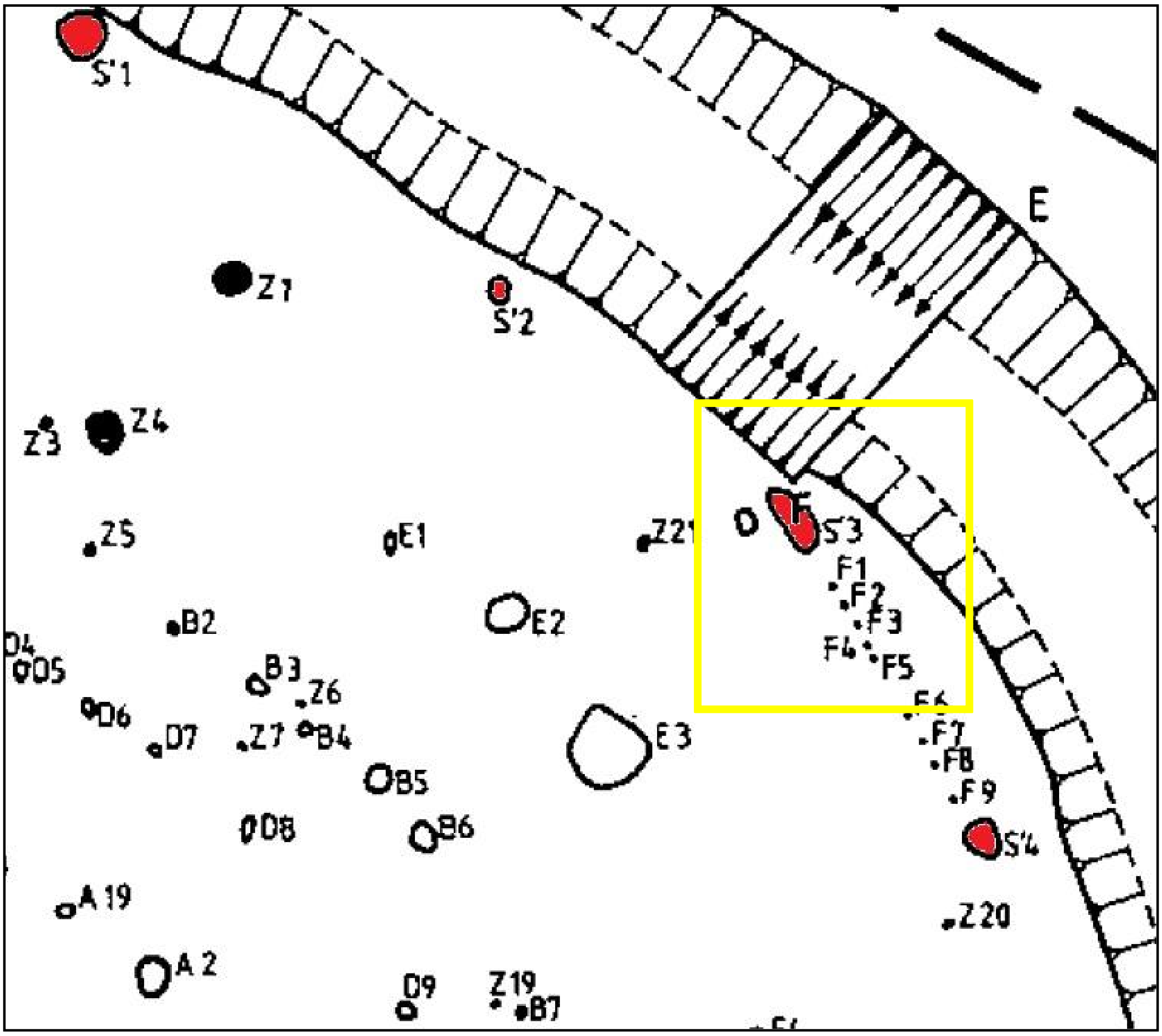


Figure 15: Eastern section of the interior of the henge at Balfarg. (From Mercer 1981, fig 40, with additions**).** The yellow highlighted area denotes the point at which stone-hole (S3) cuts the post-pipes associated with the earlier timber circle (F). The stone-holes themselves are marked in red.

After an indefinable period several burials including one that was interned close to the former post-hole (f80) and possibly associated with Beaker pottery were placed throughout the interior of the site. The final construction at Strichen was easily identifiable as a hut that was constructed during the Iron Age that took up the entire area defined by the recumbent stone circle (Phillips *et al*. 2006). The replacement of rings of timber by those of stone has not only been identified at small scale sites. During the excavation of the class II henge monument of Balfarg, six concentric rings of timbers, one with a porch arrangement, and two later concentric stone circles were identified within the confines of the bank and ditch (Mercer 1981). Despite the fact that the area within the confines of the henge had suffered greatly from the destructive effects of erosion, it was possible to identify evidence that proved the erection of the six rings of timbers predated that of the two stone circles. This is due to the fact that it was proven that stone-hole (S'3) which is associated with the outer stone circle can be clearly seen to cut through several post pipes associated with timber circle (F) (see Figure 15) (Mercer 1981, 160).

This review of the relevant case studies has been unable to find any evidence that contradicts the widely excepted sequence of timber circle – stone circle (Gibson 2005). Indeed this study has uncovered sufficient evidence to confirm this sequence at sites where it was thought not to occur. At some sites, such as Temple Wood, the primacy of the rings of posts over those of stone can be proven beyond doubt on account of the fact that stone-holes can be clearly seen to cut earlier post-holes. While at others the evidence is less obvious and relies heavily upon the personnel interpretation of observable alignments between constructed features. However in many cases such evidence is often as conclusive and seemingly conforms to the currently accepted sequence.

Recent publications relating to the sites of Croft Moraig (Bradley & Sheridan 2005) and Strichen (Phillips *et al*. 2006) have put forward arguments that suggest these two sites do not conform to the accepted timber circle – stone circle sequence. Nevertheless as this study has highlighted the evidence in the case of Croft Moraig has been proven to be inaccurate and far from conclusive and open to interpretation in the case of Strichen. In light of this conclusion it seems more than acceptable to suggest that at composite sites where the remains of timber circles and stone circles have been uncovered timber circles do indeed always appear to predate the construction of stone circles.

The longstanding interest and investigation of circle henges has led to some of these monumental forms becoming some of the most famous sites in British archaeology. As a consequence theories relating to the links between these structures have become entrenched within the archaeological literature, the mere fact that the term 'circle henge' (Burl 2000) exists being a prime example of its wide spread acceptance. Despite this it has previously been postulated that at sites where henge monuments and stone circles occur in unison the rings of stones will always be the later construction. Indeed it has been suggested that henge monuments were in fact prototypes of early stone circles (Burl 2000, 285). The review of the relevant case studies has however highlighted the fact that in the majority of cases the available evidence is often inadequate to determine the primacy of one monumental form over another. On the whole this inability to create a chronological sequence for these two monuments was often a consequence of the fact that it has proven problematic to identify any stratigraphic interactions between constructed features or any reliable datable evidence relating to the initial act of constructing them.

Despite these limitations at some sites sufficient data does exist that may possibly elude to the primacy of one monumental form over another, however in many cases the observable sequence contradicts that proposed by Burl. Analysis of the case study for the site of the Stones of Stenness for example (case study No 12) highlights the reality that it would have been a complex and difficult task to ensure that the twelve large stones did not tumble into the ditch had the henge already been *in situ* prior to the erection of the stone circle (See figure 16). Such an interpretation would imply that the stone circle was the primary construction at this site. If this was indeed the case then it would be feasible to envisage a scenario where the boundaries of the class I henge monument were marked out from the outer edge of the stone circle. The fact that the ditch is the closest feature to the ring of stones means that a high degree of architectural planning would have been required to ensure that the henge ditch could have been excavated to a sufficient depth and width while ensuring that the initial up cast material was placed in a suitable position to ensure that it did not impinge upon the expanding ditch.

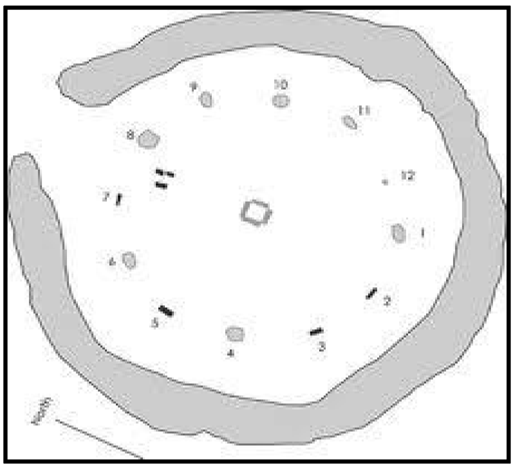


Figure 16: The Stones of Stenness. Plan shows the proximity of the large stones to the inner lip of the encircling henge ditch. (From Ritchie 2001).

While such a sequence appears feasible the radiocarbon evidence seemingly contradicts such a theory. This is due to the fact that analysis of samples of animal bone (SRR-350) *circa* 3265-2679BC and wolf bone (OxA-9762) *circa* 3314-2491BC from the primary silt of henge ditch pre-date by several centuries a sample of charcoal (SRR-351) *circa* 2910-2578BC from the central stone setting (Ritchie 2001). Despite this evidence it is important to note that for while the samples from the henge ditch can be proven to be considerably earlier than that from the central stone setting there are no stratagraphical interactions between the central setting and the ring of stones and as such these two structures may not be contemporary. Nevertheless there are elements of the contextual evidence that may support this sequence. For example it is clear that the tip of the henge ditch at its west terminal was observed to be very narrow in comparison to its counterpart (Ritchie 1976). This may suggest that the ring of stones was added to the pre-existing henge whose circumference was recut to enable the stones to be placed within its boundaries. While such a sequence for the site of the Stones of Stenness may be correct this study would suggest it more likely that the ring of stones predated the construction of the class I henge monument.

Figure 17: The central mound of the Dyffryn Lane. (From Gibson 2010). Picture clearly shows the tops of the stones protruding through the central mound.

The sequence of stone circle – henge monument has also been observed during the recent excavations at Dyffryn Lane (Case Study No 8). At Dyffryn Lane indisputable evidence was uncovered that has enabled the formulation of an accurate chronological sequence for this site that proves categorically the primacy of the ring of seven large stones over the class I henge monument (Gibson 2010). The primacy of the ring of stones can be proven through the analysis of the series of radiocarbon determinations that were generated as a result of the excavation of the central mound that had been constructed directly over the earlier stone circle and a hearth found sealed beneath the henge bank (see Figure 17) (Gibson 2010).

This is due to the fact that a *terminus ante quem* for the construction of the stone circle was established through the analysis of samples (Beta-223795) *circa* 2857-2469BC hazel twig and (Beta-231837) *circa* 2833-2466BC hawthorn / rowan twigs that were recovered from the earthen mound that covered stones 18 and 19. These dates are in stark contrast to the samples of hazel charcoal that were recovered from a hearth that was found to have been sealed beneath the bank of the henge and provided a *terminus post quem* for its construction (Beta223792) *circa* 2836-2346BC and (Beta-231249) *circa* 2618-2347BC. The establishment of such timeframes for the construction of both monuments clearly demonstrates that the stone circle was the primary construction at this site (Gibson 2010). Defining a *terminus ante* or *post quem* for these structures during excavation not only enabled the primacy of the ring of stones to be established but it also made it possible to propose that the henge monument at Dyffryn Lane was constructed within 200 years of the stone circle going out of use (Gibson 2010).

Similarly, contemporary excavations at the site of Broomend of Crichie (case study No 4) also suggested the primacy of a stone circle over a henge monument (Bradley 2011). Here excavations highlighted that the initial construction was a recumbent stone circle in the north and an arc of upright monoliths in the south which were connected by an avenue of paired monoliths (Bradley 2011). The primacy of the stone structures over the class II henge monument was proven on account of the fact that the northern henge entrance was shown to be misaligned with the line of the northern stone avenue while the line of the paired monoliths that made up the southern avenue were partly cut by the henge bank and ditch (Bradley 2011). This study is in complete agreement with the findings of these recent excavations as it is clear that the building of the henge monument changed the orientation of the site away from the avenues of monoliths and arc of stones to one that passed through the long axis of the henge between its two entrances (Bradley 2011). Arguably these two architectural failings would surely have been avoided had the henge been the primary construction (see figure 9).

It is of note that the evidence discussed thus far has seemingly alluded to the likelihood that the stone circle always pre-dates the construction of the surrounding henge monument at circle henge sites. In order to truly test this sequence this study felt it prudent to examine whether it was replicated outside the sites included within the selected case studies by examining some sites from the site catalogue (Appendix III). During the analysis of the Devil's Quoits data for example it was clear that the ring of stones and henge monument were unlikely to be contemporary constructions. This is due to the fact that the ring of 24 stones displayed no real alignment with the encircling class II henge bank and ditch nor did it have any observable entrance that lined up with either of those associated with the henge. Indeed the stone circle is positioned so far off centre within the henge that in the northern sector the stones lay in very close proximity to the ditch (Gray & Lambrick 1995). It is therefore reasonable to suggest that had the henge and stone circle been contemporary or indeed if the ring of stones was a later addition to the interior of the earthen bank and ditch then these two monumental forms would have been aligned more aesthetically, maybe to the extent that the stone circle was laid out concentrically within the henge.

While the presence of more aesthetically pleasing alignments do not prove the primacy of one structure over another it has been shown (see discussion relating to timber circle and henge monument alignments) that such anomalies within the layouts of these monuments do allude to the primacy of one structure over another. Therefore in the case of the Devil's Quoits the positioning of the stone circle within the henge suggests that the ring of stones was the primary construction with the class II henge being built to encircle the pre-existing monument. Like at most sites analysis of the datable evidence proves largely inconclusive, however if a sample of animal bone (OxA-3687) *circa* 2847-2299BC taken from the secondary silts (layer G) of the henge ditch is compared to (OxA-3689) *circa* 2831-2209BC which was generated by the analysis of an antler pick from stone-hole 17 it suggests that the henge ditch had silted up to the depth of layer G prior to the construction of the stone circle (Gray & Lambrick 1995).

Such evidence contradicts this studies interpretation of the contextual data; however it seems to have been the case that the stones at the Devil's Quoits were maintained over a prolonged period of time. This maintenance would have undoubtedly involved the realignment and possible re-excavation of many stone-holes which could ultimately explain how the analysed sample from stone-hole 17 is in statistical agreement with the dated sample from the secondary silts of the henge ditch. Such necessary maintenance of stone circles can still be seen occurring today at sites such as the Twelve Apostles on Ilkley Moor. Therefore when this knowledge is considered in conjunction with the fact that the henge ditch at the Devil's Quoits was also seemingly cleaned out on a regular basis it should be of no surprise that materials found in association with both features were found to be of the same age, however this does not mean that the stone circle and class II henge monument were contemporary constructions (Gray & Lambrick 1995).

Nevertheless a review of the data relating to the site of Cairnpapple appears to reinforce the observations made by this study thus far (case study 5). The previously proposed sequences for the constructed features at Cairnpapple (see site catalogue) are rejected by this study in favour of a sequence that sees the egg shaped oval of stones pre-dating the construction of the class II henge monument. This is due to the fact that within the circumference of the stone oval there is a clear break between stones 1 and 2 in the southern section. While it is quite presumptuous to assume that this enlarged gap denotes the existence of an entrance into the centre of the stones (in the same way that breaks in the ditch and bank circuits of henge monuments are classified) it is reasonable to suggest that this break was not formed by an accident of coincidence or poor architectural planning (see figure 18).

When the positioning of the break in the stones is compared to the alignment of the henge entrances it is clear that the stones block the northern henge entrance while the henge ditch impinges upon the entrance of the stone circle in the southern section (see figure 18). It has been suggested that the blocking of such features by the builders of these monuments was a deliberate act, aimed at restricting access into the centre of many sites (Gibson 2004). Such an act would mean that the stone oval and class II henge were either contemporary constructions or that the earthen bank and ditch were a latter addition. While this may indeed be the case this study would rather suggest that this misalignment of features was a consequence of the henge monument being constructed around a pre-existing stone structure. In addition to the misalignment of the entrances of the two monuments, further evidence to support this studies revised chronological sequence comes in two forms.

Firstly, the stone oval clearly does not fit well with the shape of the internal area formed by the henge's ditch and bank. For example in the northern sections of the enclosure the stones lay in close proximity to the inner lip of the henge ditch while in the southern section the distance between these features is significantly increased. Secondly it is apparent that the open end of the stone cove at Cairnpapple, unlike the stone oval, aligns exactly with the southern entrance of the henge. When this is considered in conjunction with the fact that the cove is also sited centrally within the henge it suggests that these two features are contemporary. If this was indeed the case then it seems reasonable to suggest that the stone oval was the primary construction at this site and was replaced, possibly after the stone circle had fallen into disrepair, by a class II henge monument with a central stone cove that may have changed the focus of this site to one of a burial ground.

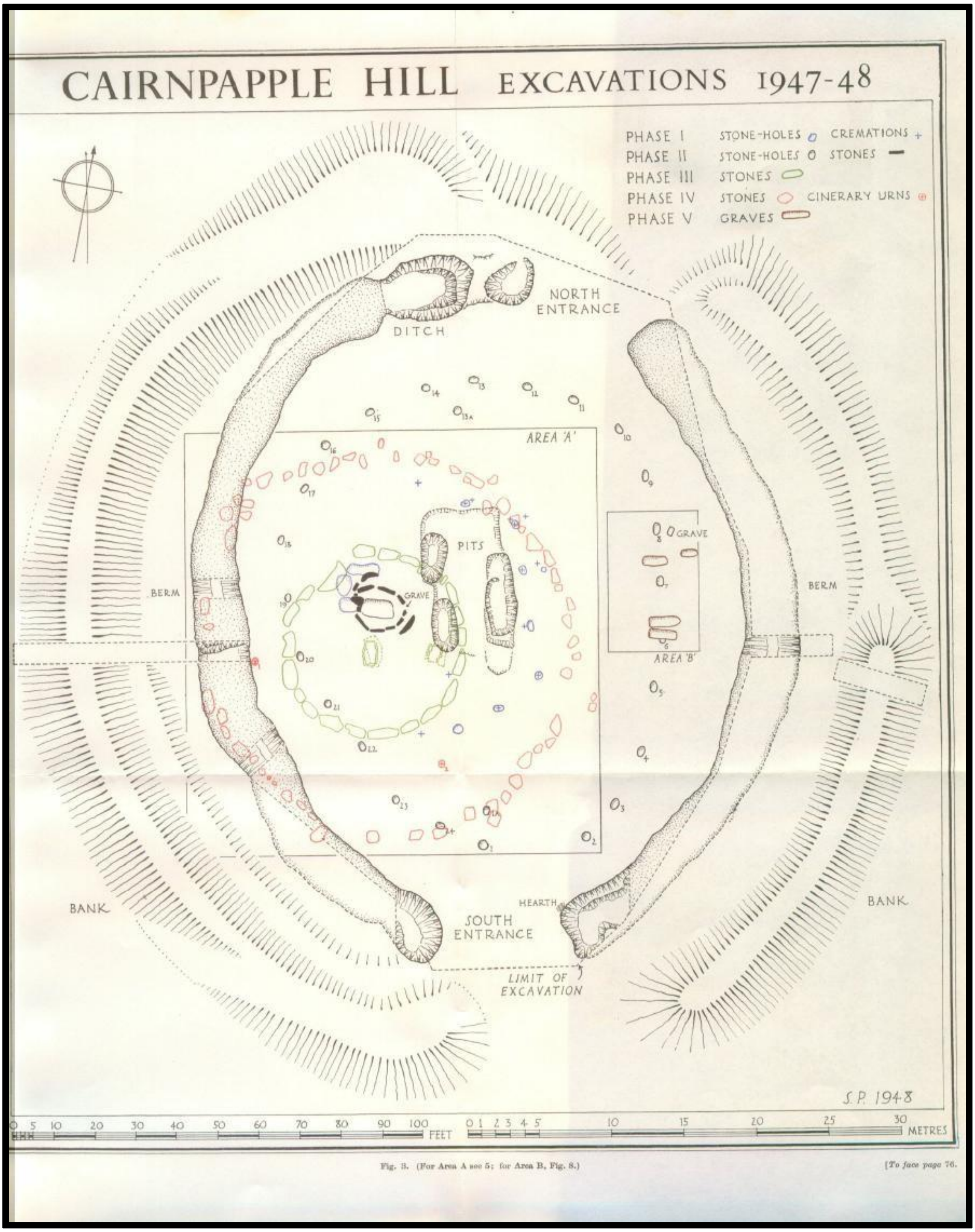


Figure 18: Plan of Cairnpapple. (From Piggott 1950, figure 3). Plan highlights the misalignment between the entrance of the henge and the stone oval and how the cove is centralised within the centre of the henge.

In comparison the establishment of an accurate chronological sequence for the stone circles and large henge monument at the site of Avebury has proven far more difficult to ascertain by this study. This is largely a consequence of the fact that there is a distinct lack of stratigraphic interactions between built features at this site and there is also insufficient variance between dated samples recovered from features that are directly associated with the primary phases of construction. Despite such limitations it has been possible to identify sufficient evidence to enable the formulation of a theory that proposes the two inner stone circles and Avebury 1 earthwork were the primary construction at this site followed by the Avebury 2 bank/ditch and the outer stone circle.

Analysis of the positioning of the two central stone circles highlights the reality that these circles are positioned off centre towards the southern area of the enclosed space formed by the outer stone circle and the henge monument (Gillings & Pollard 2004). The two stone circles are in close proximity to the stone avenue and may indeed be linked to this structure by means of the 'Ring stone' which stands between the limits of these two structures (see Figure 19). The fact that Beaker Burials have been found at the foot of several stones associated with these circles has no impact upon the suggestion that these were the primary construction as it seems more likely that these burials were later insertions (Burl 1979).

The findings of this study suggest that the two rings of stone were encircled by a large earthen bank and ditch (Avebury 1). Even though the lack of excavation at this site makes it impossible to determine the true extent of this construction it has been suggested that it followed a similar alignment to the later four entranced henge; however this may not necessarily be the case (Burl 1979). What seems more likely is that the bank and ditch arrangement of Avebury 1 was broken at least once at the point that the avenue met the southern inner stone circle. The fact that a distinct layer of turf formed upon the top of the bank of Avebury 1 suggests that this monument stood in this state for a prolonged period of time.

This study suggests that a fundamental change occurred at Avebury that kick-started a significant period of remodelling of the entire site. It is clear that the size of the henge monument was significantly increased with the material for this enlargement seemingly originating from the ditch of Avebury 1 where a step was observed to have been cut into the side of the ditch during excavation (Smith 1965; Gillings & Pollard 2004). It is clear that this alteration post-dates the avenue and therefore by association the inner circles as the ditch and bank impinge upon the pre-existing line of the avenue to the extent that it reduces considerably the width of the usable causeway created by the paired monoliths. The point at which the outer stone circle was added to this site has proved problematic to determine. It has been suggested that this ring of stones may have been contemporary with the secondary henge monument at Avebury. The opinion of this research is that to a certain extent this may indeed have been the case.

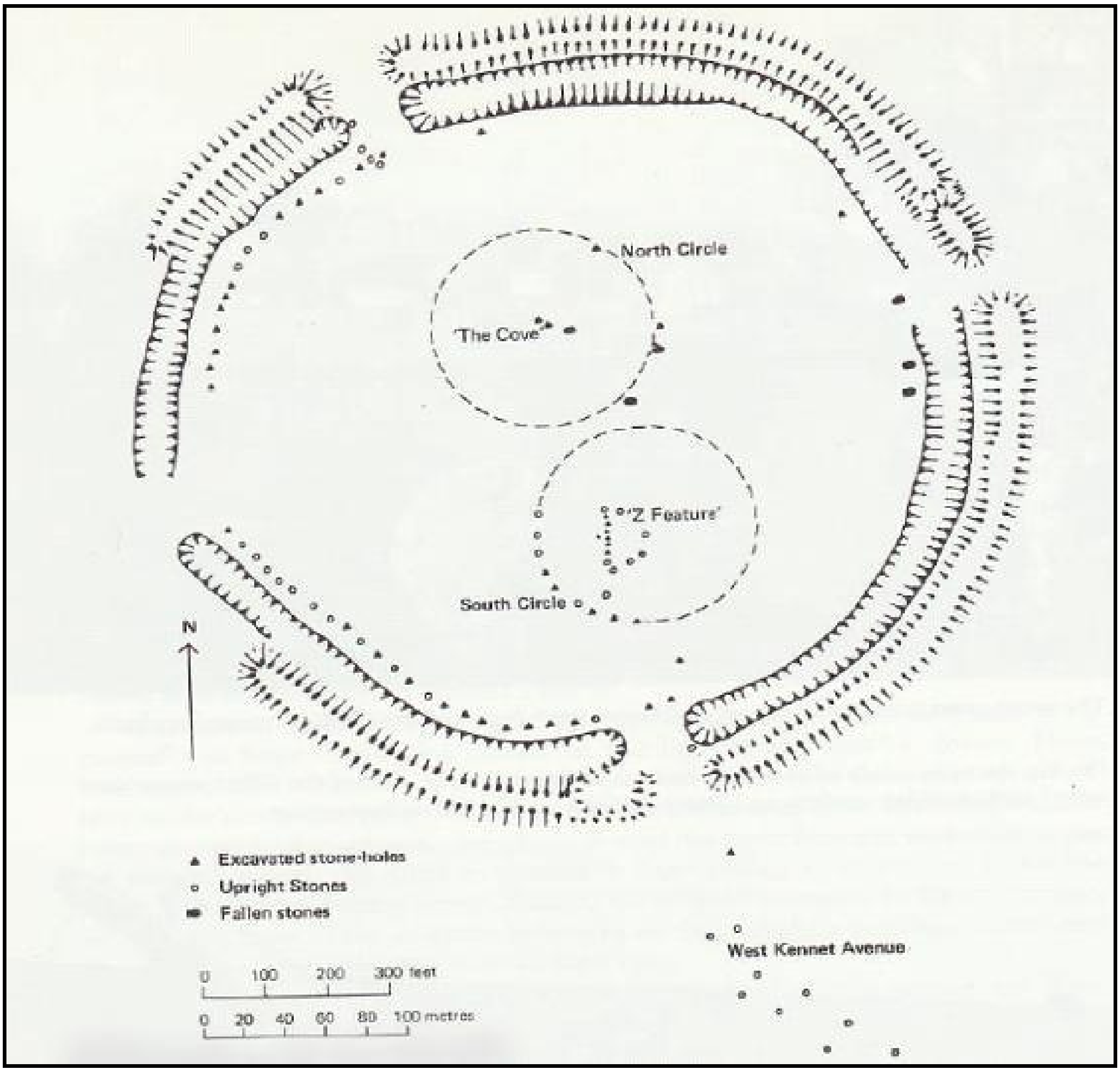


Figure 19. The constructed features at the site of Avebury. (After Smith 1965). Plan shows the misalignment of the inner stone circles with the henge entrances and the proximity of the outer stone circle with the inner lip of the henge ditch.

This study envisages a scenario where preparations for the placement of the outer circle within the boundaries of the henge had already been made as the ditch and bank of the secondary henge were being formed. It is feasible to suggest that the stone holes had already been excavated in preparation for the stones which were laid on the ground surface and erected over a prolonged period as the henge developed around them. Support for this theory lies with the observation that the radiocarbon evidence suggests that although the henge was the primary construction the stones were erected within the relevant stone-holes after a short period of time (see case study No2). This could have been as a consequence of the fact that the stones were not erected until the initial slippage and consolidation of the freshly excavated ditch and bank had ceased. Such a theory may be supported by the fact that several stone holes had been observed to have been the subject of remodelling with them appearing to have either held or been prepared to hold a stone of one form but had been found during excavation to hold a monolith of different size and shape (Smith 1965).

While the evidence relating to the site of Avebury is not as conclusive as the evidence from the other circle henge sites considered by this study it is important to note that Avebury, like Stonehenge, can be considered largely unique within the archaeological record and as such it would be surprising if sequences observed elsewhere were replicated in their entirety at this site. Such a fact is seemingly confirmed by a review of several of the sites considered during the compilation of the site catalogue for the purposes of this study. Analysis of the plans of sites such as the Ring of Brodgar, Arbor Low (see figure 20), Bull Ring (Renfrew 1979; Barnett 1978) and the site of Balfarg (Mercer 1981) highlights the fact that in these instances the rings of stone are in such close proximity to the inner lip of the henge ditch that it would seem impractical for these stones (some of which are of great size) to have been added to the interior of a pre-existing monument. However, as highlighted, the difficulty in accurately dating the point in time at which a stone was erected makes theories difficult to establish without a large-scale and widespread programme of new excavation and subsequent dating programme at many sites.

Figure 20: Aerial photograph of the site of Arbor Low. (From English Heritage website 2012). Picture highlights the proximity of the stone circle to the inner lip of the henge ditch.

Analysis of the selected circle henge sites by this study has highlighted a significant degree of data that alludes to the probability that at composite sites the construction of the henge monument (in its various guises) is seemingly always pre-dated by the erection of a stone circle. Such a theory is in direct conflict to the sequence proposed by Burl, who suggested that henge monuments not only pre-dated the construction of stone circles at circle henge sites but were in fact prototypes for such structures (Burl 2000, 285). While the findings of this study may on first inspection appear revolutionary in comparison to those that have become established within the archaeological literature they are supported by the conclusions of contemporary studies at sites such as Dyffryn Lane (Gibson 2010) and Broomend of Crichie (Bradley 2011). At some sites the establishment of an accurate chronological sequence (based upon stratigraphic interactions between contexts associated with the primary construction of these structures and critiqued radiocarbon evidence) for these two monumental forms has remained problematic. Despite this fact the evidence put forward to support the proposed sequence of stone circle – henge monument by this study is as reliable as that which has been previously proposed in favour of the currently accepted alternative sequence.

6.3: Conclusion

The review carried out by this study of the fifteen case studies and relevant important sites from the site catalogue has clearly demonstrated that the currently accepted interpretations of the contextual data for many sites is seemingly inaccurate to the extent that this study has uncovered sufficient evidence to propose more viable alternative sequences for many sites. Equally analysis of the date list associated with the considered sites has proven that relatively few radiocarbon determinations can be reliably associated with the initial act of building many of these monuments with the vast majority, as suggested in chapter 3, merely dating the material from which they derived. When considered in unison this evidence casts considerable doubt over the degree to which the currently accepted sequence of **timber circle – henge monument – stone circle** can be still considered tenable to the extent that this study is in a position to propose an alternative sequence, that of **timber circle (s) – stone circle – henge monument**. Such a sequence is suggested on account of the fact that the evidence considered here, relating to the fifteen considered composite sites, fits more suitably within the parameters of this new series far more acceptable than the currently established one does. This is due to the reality that it acknowledges the existence of multiphase timber monuments and can be implemented upon all of the considered sites without the need for divergence to take into account individual site discrepancies.

Chapter 7

Findings, Observations & Conclusion.

7.1: Introduction

The principal aim of this research was to critically reassess the datable evidence and contextual data relating to a selected number of timber circle, henge monument and stone circle sites in order to determine the validity of the currently accepted chronologies for these Prehistoric monumental structures. This aim has been achieved to the extent that this study is in a position to conclude that the widely acknowledged sequence for these monuments can be considered largely inaccurate. Such a conclusion has been reached after an extensive review of the contextual data and datable evidence revealed the reality that, despite some elements of the acknowledged sequence being correct, many factors have been identified that make the continued acceptance of the **timber circle – henge monument – stone circle** series ostensibly implausible.

Once furnished with this new position of knowledge this study sought out new evidence and reappraised existing data which ultimately facilitated the creation of a more acceptable chronological sequence that of **timber circle (s) - stone circle - henge monument**. This new series conforms to the archaeological data and datable evidence (both relative and absolute) that has been analysed by this study more agreeably. The purpose of this concluding chapter is to draw together the key findings and observations made during the compilation of this corpus that have led to the creation of this new sequence for composite timber circle, stone circle and henge monument sites.

7.2: The Reassessment of the Datable Evidence

During the initial review of the datable evidence relating to timber circles, henge monuments and stone circles that was undertaken during the compilation of the site catalogue (Appendix III), it became immediately apparent that the date lists for these three monumental forms contained numerous determinations that could largely be considered unrelated to the construction they had been used to date. The attainment of such knowledge prompted this study to duly subject all radiocarbon dates, which were to be considered by this assessment, to a critical review. As a result 44 radiocarbon determinations pertaining to timber circles, 96 to henge monuments and 35 to stone circles were committed to a more in depth critical evaluation. This task was undertaken with a view to determining the reliability of their overall relationship with the relevant phase of construction i.e. event, they were used to date (See Appendix II). The criteria used to grade each individual determination were established and based upon those suggested by previous studies that have sought to tighten other such radiocarbon chronologies for both monuments and material culture associated with the Later Neolithic and Bronze Age (see Waterbolk 1971; Garwood 1999 for example).

These criteria (Tables 1 and 2) enabled the overall integrity of each individual radiocarbon assay to be determined in two principal ways firstly; the accuracy of the relationship between the dated sample and the event it was used to date were established and secondly; the impact of age-at-death offsets was ascertained. Each determination was graded accordingly and subsequently applied to a pro-forma (Table 3). This practice enabled comparison between individual dates on a large scale for all three monumental forms and facilitated the establishment of a series of databases that clearly demonstrated an order of accuracy for the considered dates. The overall findings of this reassessment and all relevant supporting data can be found in Appendix II while a summery of the conclusions that were drawn from these data will be discussed here.

On the whole, the majority of dated samples from timber circles were recovered from a variety of contexts associated with the surviving post-holes as opposed to the actual timbers themselves. As a consequence, of the 44 radiocarbon dates relating to timber circles 19 were rejected and of the 25 remaining determinations that were judged reliable only 14 were considered as being directly related to the initial act of erecting the timber they had been used to date. In most cases rejected samples consisted of determinations such as the collection of dates from ring (A) at Balfarg (GU-1160, GU-1161, GU-1162 & GU-1163) which were all samples of mixed charcoal that had been incorporated into the backfill of the post-hole. This is due to the fact that the origins of such materials in the backfill of a post-hole cannot be confirmed as being associated with the actual act of erecting the post itself as there is an increased likelihood that this was residual material that became incorporated into this context either before or after the post had been erected.

Analysis highlighted that dated material associated with timber circles could have been present in the old land surface prior the post-hole being excavated or indeed that the dated materials could have washed into a deposit or become incorporated into the backfill while the earth was being replaced to secure the timber. This question over the origin of such materials is especially the case for samples that have been made up of multiple materials that were recovered from a variety of post-holes such as (NPL-239) *circa* 2578-1959BC from Durrington Walls (South) which was a mixed sample of an antler from several post-holes relating to the phase I circle (Wainwright & Longworth 1971). Therefore unless it was clear at what point in time these samples entered the post-hole, they have been classed as unreliable. Similarly dates that were generated as a consequence of analysed samples recovered from the post-pipes, that had formed after the post had rotted *in situ* such as those recovered from the site of Balfarg RS (GU-1905-GU-1907), were also rejected on account of the fact that the duration of time that the timber may have taken to rot was classified as being an unknowable variable by this study. The reliability of samples that derived from postpipes were also considered less reliable as a result of the reality that such samples could have been affected by the same limitations as those that affected samples recovered from postholes. Samples that were recovered from central or enclosed features such as funerary structures or hearths were also rejected owing to the reality that their construction could not be reliably attributed to that of the encircling monument which therefore may have been added many centuries before or indeed after the timber structure was constructed.

It was clear that a significant degree of accuracy exists between individual determinations with regards to their ability to accurately date the structure they had been used to date. As a result relatively few determinations relating to timber circles have been considered by this study as being wholly accurate. Of the 44 determinations only 14 achieved a combined score of five or less with the majority of these coming from only two sites those of Sarn-y-bryncaled (BM-2805 - BM-2808) (Gibson 1994) and Dorchester site 3 (BM-2161R, BM-2162R , BM-2164R) (Atkinson 1951). This is due to the fact that this study considers these determinations as being directly associated with the initial erection of the timber circles at these two sites. Support for such a claim comes not only in the form of the fact that the dates were generated by the analysis of samples that clearly derived from the charred outer growth rings of the timbers which it seems likely had been charred prior to being inserted into the post-holes (Gibson 1994; Atkinson 1951), but also relies of the reality that the series of dates relating to each individual site were statistically indistinguishable.

The rarity of such evidence, like that noted at Sarn-y-bryn-caled and Dorchester 3, highlighted that if all posts were subject to charring prior to being placed into a post-hole then relatively little evidence for this practice has survived. For while the majority of dated samples are indeed of charcoal, most are from residual material that entered the post-hole as it was being back-filled or after it had either rotted *in situ* or been deliberately removed. Such evidence suggests that in the majority of cases the builders of timber circles may not have intended these structures to remain *in situ* for prolonged periods of time. Nevertheless despite such limitations this study did encounter several determinations that derived from anomalous materials that had been recovered from the packing of several post-holes that may be considered as providing a more accurate date for the erection of the relevant timber circle.

Such samples included a sample of wooden plank from North Mains (GU-1352) *circa* 30892675BC (Barclay 1983) which was interpreted by this study as possibly being part of the original timber structure at this site. Comparably the majority of radiocarbon determinations that have previously been propagated as being able to date the initial construction of henge monuments were also largely found to be unreliable by this study. Of the 96 considered dates, most derived from a variety of contexts associated with the fills of the henge ditches. Since the purpose of this study was to ascertain the accuracy of the established chronologies it was felt that dated materials that were recovered from any context above the base of the henge ditch or indeed the primary silts would be considered inaccurate for the purposes of this task. Therefore 46 determinations were rejected on account of the fact that they derived from these silts and as such were considered at best only able to date the point in time at which the henge ditch had silted up to this level.

Determinations that related to internal features, such as graves or indeed timber and stone circles, were also rejected as a means of dating the initial creation of a henge monuments bank and ditch(s). This is due to it remaining unclear whether these internal structures were directly related to the initial idea of or indeed architecture of henge monuments (see later discussion) as they have been proven to either pre or post-date the construction of the surrounding earthen monument by this corpus (See chapter 6). Despite these two factors leading to many dates being rejected some of these determinations did assist in the formulation of an overall likely lifecycle of certain henge monuments and as such still proved to be of use (see later discussion).

Primarily, reliable determinations consisted of those recovered from the principal silts, the base of henge ditches and contexts that had been sealed beneath the up cast material of the henge bank. This is due to the fact that it was felt that dates from short lived specimens from such contexts would afford the best opportunity to accurately date the initial construction of the henge as they were positioned in contexts that were less likely to be the subject of later contamination after the henge had been constructed. At worst these determinations should provide relatively accurate *terminus ante or post quem* dates for the respective henge monuments. Such determinations have been identified in large quantities, (see appendix II) with dates such as (OxA-12555 & OxA-12556) which were samples of dated antler recovered from the base of the henge ditch at Avebury (Pollard & Cleal 2004) or (Gra-24007) which was a sample from burial A that was found to have been sealed beneath henge bank at North Mains (Sheridan 2002).

However like the determinations that have been recovered from the considered timber circles care clearly needs to be applied to the accuracy of any determination recovered from within the confines of a henge monument. For while datable materials recovered from such contexts will be unquestionably more accurate than those taken from the secondary or upper silts it still remained difficult to confirm with any degree of certainty what period of time elapsed between the arrival of these dated materials in the henge ditch and the initial act of building the henge. Equally, it should also be bore in mind that these materials could have easily washed in or eroded into the ditches of the considered henge monuments (Ashbee 2004). This is due to the fact that such samples would prove to be significantly older than the henge monument itself.

Nevertheless the degree to which these dates can be considered reliable for henge monuments is in stark contrast to the majority of determinations that have been investigated pertaining to stone circles. This is due to the reality that analysis of date lists for stone circles considered by this study demonstrated that most dated samples primarily related to other structures such as; encircling henge monuments, sealed post-holes or enclosed burials. These indirect determinations have been rejected by this study in favour of those that can be considered to relate more directly to the actual erection of the stones themselves. As a result 21 radiocarbon determinations out of an initial sample of 35 stone circle dates were immediately rejected. Similarly dates that derived from cremations or burials that had clearly been placed in close proximity to the stone upright after it had been erected were also rejected on account of the fact that it is unknowable what period of time may have elapsed between this funerary activity and the creation of the stone circle.

Of the remaining 13 dates that relate to stone circles only 7 have been classified as reliable on account of the fact that the dated materials were recovered directly from the stone-hole itself. Arguably, as a consequence of the nature of stone circles only materials recovered from such contexts can be considered reliable. However considerable care was required when analysing the stone circle evidence as such materials could have infiltrated these contexts prior to or after the stones were erected. This is due to the fact that it was noted that many stones appear to have been realigned or re-erected throughout their lifecycle and as a consequence materials that are much later may have entered primary contexts beneath the stone during this period. Examples of this were noted during the compilation of the Avebury case study (case study No 2) where several stones had been proven through excavation to have been re-erected (Pollard & Cleal 2004). Therefore caution should still be applied to seemingly reliable dates, such as (HAR-10327) *circa* 2576-2043BC from Avebury which was a sample of animal bone from stone-hole 44 as even though it provides a *terminus post quem* for the erection of the stone it may be the case that the material entered this context after the stone had been removed.

In conclusion the date lists for the timber circles, henge monuments and stone circles were found to be littered with inaccurate and unreliable determinations which in many cases were considered by this study to be unrelated to the event they had been used to date. Of those determinations that were found to be reliable it was often the case that direct comparison could not be made between samples other than to say that they dated to a similar period in time. This was due to the fact that even though short lived materials were often recovered from primary contexts there were no patterns of disposal that could be identified which would have enabled like for like comparisons to be made i.e. antler picks were seemingly not placed at the base of every henge ditch upon completion, the posts of all timber circles were not charred prior to being inserted into the their respective post-holes and nor was a cremation placed within a stone-hole of every stone circle. Nevertheless this review of the datable evidence has been able to determine the overall accuracy of the date lists for these three monuments and create a database that reflects this reviews findings (See Appendix II).

7.3: Formative Sites, Possible Origins &The Currency of The Considered Monuments

Analysis of the archaeological record by this study has clearly demonstrated that the three monumental forms under investigation share a common history with one another as timber circles, henge monuments and stone circles occur not only as standalone structures but have also been proven (through excavation) to form individual elements of composite sites. Perhaps such relationships are a consequence of the reality that in their simplest architectural forms these structures are merely a series of circular and oval enclosures whose boundaries are defined by rings of timber, earth or stone (Gibson 2004). It is without question that such similarities have led to these monuments remaining indelibly linked ever since Kendrick initially classified all three structures under the all-encompassing descriptive term of 'henge monuments' (Kendrick 1932). Nevertheless, despite such obvious links and evidence from sites such as Balfarg where the remains of a timber structure, class II henge monument and two stone circles were shown to occupy the same area during excavation (Mercer 1981), it is less certain whether these three monumental structures share a common ancestry.

This is a consequence of the fact that relatively few, if indeed any, formative sites could be identified by this study from which all three of these monumental forms could be proven to be direct descendants. Despite these limitations it is possible to offer some basic thoughts upon the possible origins and initial inception of timber circles, henge monuments and stone circles based upon the data generated during the undertaking of this study. This is due to the reality that after the reassessment of the radiocarbon database (Chapters 3 & 4, Appendix II) it was noted that some structures produced significantly earlier radiocarbon dates compared to the majority of determinations contained within the compiled database; while others were noted (during the compilation of the site catalogue) for displaying architectural anomalies when compared to the remaining sites in the selected sample. For example of the twenty seven sites that contained the remains of a timber circle or circles the radiocarbon determinations from six sites were of considerable interest as they appeared to be significantly earlier than those from the remaining sites. The most striking of these dates derives from the site of Temple Wood (North) where a sample of oak charcoal (GU-1296), was recovered from stone-hole 8. This determination dated to the period *circa* 4316-3377BC and as such is the earliest date from any of the considered timber circle sites (Scott 1988).

The dated sample from Temple Wood is believed to have been a fragment of surviving heartwood that may have originated from a post that made up the timber circle at this site. However this charcoal could equally have been residual material that became incorporated within the later stone-hole that sealed the earlier post-hole. As such it would seem more likely that this sample pre-dates the construction of the timber circle by a considerable period of time, probably by as much as several centuries. The degree to which this sample from Temple Wood pre-dates the remaining determinations can be clearly demonstrated by analysis of Appendix II which shows the calibrated dates for the timber circles considered by this study. A similar anomalous determination comes from the site of Arminghall where a sample of oak charcoal recovered from the base of post-hole 7 dated to *circa* 3628-2696BC (BM-129) (Barker & Mackey 1963).

The comparative disparity of this determination has been explained by the fact that this sample derived from the inner growth rings of a tree that was *circa* 120 years old at time of felling (Barker & Mackey 1963). However this date could be accurate owing to the reality that the timber circle at Arminghall has been proven to pre-date the class IA henge monument at this site (see case study No 1). It is therefore conceivable that it could do so by over a millennium as is suggested when this date is compared to those associated with the fragments of rusticated Beaker pottery that were recovered from the henge ditch during Clark's excavations (Gibson 2005, 62). Such a theory is not without comparison with supporting evidence coming from the site of North Mains where the construction of the two timber circles has been proven to pre-date the encircling henge also by as much as 700 years (Sheridan 2002; Barclay 2005; Gibson 2005.) (See case study No 11 for full discussion). As such it seems reasonable to suggest that the date from Arminghall may indeed be accurate.

With regards to the timber circles at North Mains themselves these structures also date to an earlier period than would be expected. This is due to the reality that a sample of wooden plank from a post-hole associated with timber circle (A) dates to the period *circa* 30892675BC (GU-1352) (Barclay 1983). It may be the case that this plank formed part of the original structure at North Mains, if so then this dated sample provides a very accurate date for the erection of this timber circle. This sample has been regarded as accurate by this study (see Appendix II) and as such it places the construction of timber circle (B), which has been proven to pre-date circle (A) (see case study No 11), beyond this period possibly to a similar point in time as the timber horse shoe at Arminghall.

Similarly the excavations at the sites of Balfarg, Machrie Moor I and Coneybury Hill have also produced relatively early calibrated radiocarbon determinations from their respective timber monuments. In the case of Balfarg four samples were recovered from the back-fills of the severely disturbed post-holes of the main ring; the earliest of which came from a sample of oak charcoal that dated to the period *circa* 3264-2705BC (GU-1163) (Mercer 1981). While all four of these samples are largely in statistical agreement with one another, they are much earlier than would be expected for a timber monument of this form when compared to the remaining sites in the site catalogue (Appendix III). It may indeed be the case that these determinations from Balfarg demonstrate the possibility that this structure was an early formative timber circle site. However on closer inspection this study would prefer to suggest that these determinations derive from residual material that became incorporated into the back-fill of the post-holes during construction.

At Machrie Moor I a sample of mixed charcoal from a post-hole associated with the main ring dated to a similar point it time to the samples from Balfarg (GU-2316) *circa* 33542943BC (Haggarty 1991). Like the samples from Balfarg, this dated material from Machrie Moor I has been considered largely unreliable by this study on account of the fact that it derives from a sample of mixed charcoal (Haggarty 1991). Nevertheless the proven occupation of Machrie Moor I over a prolonged period of time may support the idea that the initial timber monuments did indeed date to this formative period even if the datable evidence is questionable. Comparable evidence from Coneybury Hill also suggests an early construction date for the timber circles at this site. This is due to the reality that a sample of animal bone from the upper fills of a post-hole (OxA-1409) produced a date of *circa* 33542781BC when subjected to analysis (Richards 1990). Unlike many of the aforementioned dates relating to early timber circles this date from Coneybury can be substantiated by a determination from the primary silts of the encircling henge ditch (OxA-1408) *circa* 30892475BC, which has been proven to post-date the erection of the posts on account of the misalignment between these two constructions (see Appendix III). Consideration of such data means this study can only conclude that the early date from this site is largely accurate.

The identification of such determinations (despite their inherent limitations with regards to their accuracy) provides a period in time at which timber monuments appear to originate. When this data is considered in conjunction with the remaining determinations in the database relating to timber circles (Appendix II) it suggests that the construction of rings of posts spanned the Later Neolithic to the Early Bronze Age with the phenomenon possibly originating in the centuries *circa* 3300BC onwards but more certainly being completely established by the period *circa* 2800BC. Nevertheless it is clear (see Appendix II) that doubt must be cast upon the reliability of many of these early determinations relating to timber circles. This doubt is compounded by the reality that all of the considered timber monuments can be considered largely unique with no two monuments seeming to follow the same architectural blueprint.

If Temple Wood, Balfarg, Arminghall, North Mains, Machrie Moor I and Coneybury Hill are indeed formative sites then there are no obvious architectural conformities between any of them other than the utilised building material. With this fact in mind it would appear reasonable to conclude that if all timber circles are a result of the diffusion of a common idea then it may be the case that these sites have still to be identified. Therefore it would appear more prudent to accept the currently accepted date of *circa* 2800BC for the true inception of timber circles as this period can be more accurately proven with determinations from sites such as Durrington Walls and Dorchester site III (see Appendix II). Assessment of the remaining data highlighted that the established currency for timber circles as a whole is largely accurate.

This is in spite of the reality that, as discussed, it is clear that the date lists for timber circles contain numerous determinations whose ability is limited to providing only a *terminus ante* or *post quem* for the construction that they have been found in association with and duly used to date. Despite such limitations with accuracy, all considered determinations fall within the currently established boundaries for timber circles. It is clear that timber circles were being constructed until the period *circa* 1000BC with no sites considered by this study post-dating this period. Therefore with the exception of the sites discussed above the overall established currency for timber circles compiled by this study is in complete agreement with the currently accepted time frame for the overall construction, occupation and abandonment of these monuments that of 2800 -1000BC (Gibson 2005, 59-81).

Similar limitations were encountered while attempting to establish the currency of the henge monument phenomenon. In the main this difficulty was a consequence of several factors firstly; each structure considered by this study that has previously been classified as a henge monument can largely be regarded as unique. Secondly; the datable evidence recovered from these monuments often derives from contexts that rarely can be regarded as having a direct relationship with the initial construction of the henge and thirdly; many of the radiocarbon determinations that are regarded as providing an accurate date for henge monuments derive from central features (i.e. timber and stone structures) which will be proven later to be seemingly unrelated to the henge monument themselves.

Analysis of the radiocarbon database compiled for the purposes of this study highlights the fact that the overall currency of henge monuments appears to span the period *circa* 3500BC to 1500BC with more recognisable sites being constructed *circa* 2800BC onwards. The difficulty in establishing possible formative sites that pre-date this period can be observed throughout the site catalogue (Appendix III), as in most cases the sites which date to the period prior to 2800BC do not appear to possess the characteristics that mark out the henge class from other Prehistoric structures. For example within the selected sites six monuments were identified during the compilation of the site catalogue as dating to what has previously been established as being the formative period for henge monuments (Harding 2003, 12-20). Of these no two sites could positively be considered as being similar and most even lacked several of the diagnostic traits that define the henge class.

The site of Balfarg Riding School for example produced several radiocarbon determinations from the secondary silts of the supposed henge ditch; the earliest of which came from a sample of hazel charcoal (GU-1670) and dated to the period *circa* 3335-2916BC (Barclay & Russell-White 1993). Nevertheless aanalysis by this study highlights the reality that Balfarg Riding School seems unlikely to have been a henge monument (see Appendix III) owing to the fact that this site does not appear to possess a bank. If indeed shallow traces of such a feature can be identified it is clearly not broken by any form of entrance. While the segmentary ditch that defines this site may indeed be a blueprint for what is to follow, this site is rejected by this study on account of the fact that the two timber structures enclosed by it are clearly funerary constructions and as such this site should be regarded as more of a mortuary enclosure rather that a henge monument of any class.

Comparable dates to those from Balfarg Riding School were also noted during the analysis of the data from Coneybury and the mini henge site of Dorchester site 2. At Dorchester site 2 a sample of analysed antler from the primary silts of the ditch (BM-4225N) dated to the period *circa* 2921-2634BC (Radiocarbon 32, 1990), while at the site of Coneybury a sample of animal bone from the primary silts of the ditch (OxA-1408) dated to the period *circa* 30892475BC. Nevertheless despite these two monuments producing radiocarbon determinations that upon first inspection clearly place their initial construction within the formative henge period it currently remains difficult to establish the true origins of these two monuments. This is due to the reality that further excavation is required to ensure that these early dates are not anomalous or the result of residual materials being incorporated into much later deposits. Even if these two sites can be proven to be early formative structures then it is clear that the variety that we currently see within the henge class was an early introduction as the layout, size and appearance of Coneybury and Dorchester site 2 are very dissimilar.

Analysis of the data clearly highlights the fact that many of the monuments that have previously been suggested as being formative sites may in fact have been completely unrelated to the initial inception of or indeed the henge class as a whole. Arguably these sites have previously been identified as a consequence of the fact that the overall terminology (which has been discussed in depth throughout this study) is so loose that it permits any structure that contains any of the identifiable traits of a henge monument to be incorporated into this class of structure. Despite this actuality several sites were identified by this reveiw which date to the last few centuries of the fourth millennium that fit more comfortably into the mould as a formative henge sites. The site of Llandegai A for example produced a date of *circa* 3518-2680BC (NPL-221) from a sample of charcoal that was recovered from the primary silts of the henge ditch during excavation (Houlder 1976: Lynch & Musson 2004). Although caution clearly needs to be applied to the degree to which this sample can be considered reliable it clearly places the construction of this site within the previously established parameters set out for formative henge sites by this study.

The site of Llandegai A clearly possess all the relevant architectural features required to be considered a henge monument as it has a bank and ditch that is broken by a single entrance (Lynch & Musson 2004). However like Stonehenge (which has not been considered by this study because of its uniqueness) the site of

Llandegai A can be considered as atypical as the bank is sited on the outside of the ditch (Houlder 1976: Lynch & Musson 2004). On account of such evidence this study suggests that it may be the case that the positioning of the bank and ditch was not essential in the early stages of the henge phenomenon as it was to later become and as such this site is accepted as providing a starting point for the inception of henge monuments. Such a theory is given credence through comparison with the timber circle data which clearly highlights that in the early stages post structures were seemingly not bore out of one particular type of arrangement either.

Even if this is not the case, contemporary sites with that of Llandegai A were seemingly already beginning to appear by this point in time that cannot be classified as anything other than a henge monument. Analysis of the data from the site of the Stones of Stenness for instance highlights the fact that prior to the period *circa* 2800BC fully formed henge monuments were already being constructed. At Stenness a henge that had an internal bank, an external ditch and one single entrance had already been formed prior to the animal bone which was dated to *circa* 3265-2679BC (SRR-350) being placed on the base of the henge ditch (Ritchie 2001). Nevertheless despite this data, care should be taken with regards to the overall accuracy of this determination as materials from the upper fills of the same henge ditch were found to date to a much earlier period, a cattle hoof core from the secondary ditch fill (OxA-9763) *circa* 3335-2916BC, being a prime example (Sheridan 2006).

Such data may suggest (as was seen during the excavation of the henge ditch at Stonehenge) that materials were being curated for prolonged periods of time (Serjeantson, 1995). If this was indeed proven to be the case then the date lists for the site of Stenness may need to be readdressed. Equally early determinations have been recovered from the base of the recut henge ditch at Avebury (Avebury 2) such as the sample of antler (HAR-10502), which dated to the period *circa* 3329-2630BC (Pollard & Cleal 2004). This date is considerably earlier than the majority of determinations considered by this study which would suggest that the second earthwork at Avebury may have been a formative site for the henge phenomenon.

However care must be taken with the interpretation of such a determination on account of the fact that the primary bank and ditch at Avebury was proven to have been the subject of a considerable reconstruction (Smith 1965: Gillings & Pollard 2004) to the extent that it is unclear whether the initial earthen circuit (Avebury 1) was indeed a henge at all (see case study No 2). Therefore it currently remains unclear whether this analysed sample originated from this primary construction (Avebury 1) and after being retained for a prolonged period was then placed upon the base of the new ditch cutting or whether it was primarily related to the act of excavating the secondary ditch (Avebury 2) from which it was recovered.

In comparison to the timber circle and henge monument data that relating to stone circles (despite these structures numbering over a thousand within the study area) is extremely limited. Therefore the establishment of a date for the inception and overall currency of stone circles as a whole has proved far more problematic for this study to identify with any degree of certainty. Largely this was due to the fact that many of the radiocarbon determinations that have been propagated as dating the construction, occupation or abandonment of a stone circle actually relate more closely to the structure that either pre or post-dated the stone circle itself or more often relates to the henge monument that surrounds it (see Burls 2000 corpus for instance). Nevertheless this study was able to compile a sufficient amount of data to enable it to reaffirm the currently accepted chronologies for stone circles. Analysis of the available data by this study highlighted the fact that the overall currency of stone circles in their various guises spans the period *circa* 3000-1000BC. This episode of stone circle construction was largely in agreement with the currently accepted chronologies that are often propagated for these monuments 3200-1000BC (Burl 2000).

Nevertheless despite the limitations discussed above this study did highlight several sites that produced relatively early radiocarbon determinations. During the excavation of the site of Temple Wood North a sample of oak charcoal was recovered from the base of stone hole 8 (GU-1296) which dated to *circa* 4316-3377BC (Scott 1988). As discussed above it is unclear whether this sample relates to an earlier timber circle or to the construction of the stone circle itself. However even when the old wood effect is taken into consideration this sample still provides a very early *terminus post quem* for the erection of the stone circle that leaves a generous period of time in which the stone circle could have been constructed prior to the more widespread inception of these structures.

Equally, analysis of a sample of charcoal from a pit that was sited outside the stone circle at Cairnwell also produced a very early date for the creation of the stone circle. Nevertheless while this sample (GU-4402) *circa* 3646-3125BC (Rees 1997) may date to the period in which stone circles evolved, it has been regarded as unreliable by this study owing to the fact that the pit from which this sample derived may not have had any real association with the stone circle. The remaining early determinations noted by this study relate to the site of Avebury where a sample of charcoal (HAR-10062) was recovered from stone-hole 41 of the outer stone circle and dated to *circa* 2896-2485BC (Pollard & Cleal, 2004). Such a determination while not as early as some other sites does provide a relatively reliable date for the construction of the outer circle at Avebury.

Similarly a combined sample of charcoal and cremated bone from the central stone setting at the site of the Stones of Stenness (SRR-351) dated to the period *circa* 2910-2578BC (Ritchie 2001). While this date can be considered relatively early in the currency of stone circles the reliability of this date is questionable on account of the reality that it is from a central feature and as such it is impossible to determine whether this structure and the surrounding stone circle were contemporary constructions, a relationship that is definitely questionable when the much younger samples from the stone circle are taken into consideration (see case study No 12).

On reflection of the data discussed above this study can at best only conclude that there is without question a considerable degree of overlap between both the origins and overall currencies of timber circles, henge monuments and stone circles. In addition it is clear that if formative sites exist there is currently insufficient means to identify them beyond that of noting the existence of sporadic and isolated early radiocarbon determinations and the presence of distinctive architectural features that have not been found to have been replicated elsewhere. As a result it has also proved impossible to determine with any degree of certainty whether one monumental form was the catalyst that signalled the introduction of the two remaining structures.

This inability to confirm the principal monumental form of the three considered structures is in spite of the reality that this study has been able to identify three major factors relating to the age and chronologies of these monuments. Firstly, at composite sites one monumental form has clearly been demonstrated to replace another to the extent that patterns of development have been identified that appear to be replicated throughout the study area. Secondly, analysis of the radiocarbon database highlights that this pattern of replacement did not occur at specific points in time but rather continued sporadically throughout the study area over a period of nearly two millennia. Thirdly, this pattern of development was not so rigid that all sites witnessed the construction of all three monumental forms in succession (see Broomend of Crichie case study for example). This suggests that one monumental form did not take precedence over another in terms of age and development but rather implies that each individual construction provided a different function to those who built and used them. Such an idea carries a significant degree of credence when the fact that these monuments also continued to be constructed in isolation throughout the entirety of the period *circa* 2800 – 1000BC in taken into consideration.

What is clear is that any decision to build a timber circle, henge monument or stone circle would have been a massive undertaking both in terms of planning and the management of work forces and physical resources for the peoples' of Neolithic and Bronze Age Britain. With this fact in mind this study therefore concludes that the key to identifying the origins of these three structures rest not with the continued isolated analysis of the monuments themselves but rather lies with the results of the combined study of this data and evidence relating to the analysis of the behaviours and actions of the people that built them. Contemporary studies have been successful in gaining a previously unachievable level of understanding of how these monuments developed by examining how they were utilised.

The Stonehenge Riverside Project 2003-2010, which undertook excavations at the site of Durrington Walls, recovered large quantities of pig bones that were believed that have been deposited at this site as a result of reoccurring feasting taking place. Subsequent analysis of these remains has demonstrated that these animals had been brought to the site from various locations throughout the British Isles. In addition it has also proved that the site of Durrington Walls was the focus of regular and continued large scale gatherings around the summer and winter solstices but was not continually occupied by all those who visited (Parker Pearson 2007). From such evidence it is possible to extrapolate a significant degree of data relating to the design and development of not only Durrington Walls but of these structures as a whole.

For example it is clear that large groups of people were biannually travelling to the site of Durrington Walls. However despite their clear separation (demonstrated by the reality that they were rearing animals in isolation) they clearly all had a collective interest in this monument. Arguably the individuality of these groups is reflected in the lay out of the henge ditch at Durrington Walls owing to its segmented nature which may suggest that collaborating groups were allocated their own section of ditch to excavate over a period of several returning seasons. Such methods of creating a large earthen enclosure clearly mimic those used previously to create the earlier segmented outlines of causewayed enclosures, the only difference being the now absent causeways (Parker Pearson 2007, 140-141). This technique may possibly suggest the presence of a collective memory of these earlier building traditions amongst those who built Durrington Walls. Nevertheless these earlier structures do not appear on the whole to have been the catalyst that prompted the introduction of henge monuments.

The evidence generated by the recent Durrington Walls excavations demonstrates that the people of Britain *circa* 2500BC were living in isolated communities throughout the study area but were often coming together in large numbers to undertake communal tasks. This theory is supported by the findings of many previous studies and evidence from the archaeological record as a whole for this period as it highlights how after a brief interval of sedentism at the start of the

Neolithic by the late fourth Millennium BC groups were clearly becoming more mobile (Parker Pearson 2005). Perhaps it could be this mobility, that was clearly linked to exploiting the landscape in order to survive, that prompted the regular return to specific sites at set points throughout the year for the purposes of events relating to a belief system, trading or indeed the mere maintenance of links between likeminded mobile groups.

Therefore while this review has been unable to identify a definitive series of formative sites or indeed any individual monument that clearly triggered the widespread introduction and construction of numerous timber circles, henge monument and stone circle sites it is able to conclude with some basic thoughts. For instance it is clear that the widespread adoption of these three monumental forms was a consequence of the diffusion of an idea or belief system that led to sites being built around the country but not necessarily with any one known site such as Durrington Walls or indeed Stonehenge being at its centre. It is also clear that it was what these monuments represented that was important not their overall appearance. This is supported by the reality that despite their intrinsic similarities all sites whether they were constructed of timber, stone or earth or indeed a combination of the three were all largely unique structures (see Appendix III for example).

The reasons for this could lay with the reality that each individual group despite possibly benefiting from the assistance of other groups (as has been demonstrated at Durrington Walls) placed their own individual stamp upon each of these monuments. Such a theory is supported by the known existence of multiple classes of henge monuments as the construction of some classes was clearly focused around certain points in time and the reality that the overall design of timber and stone circles changed from single, to double and multiple rings before returning to more simple circles once more (Gibson 2005). This study could not find sufficient evidence to categorically determine whether these changes were the result of new architectural trends or indeed the existence of splinter groups that were beginning to separate themselves from the principal ideas associated with these monuments.

Analysis of the radiocarbon data reveals that within the study area the construction of one monument in favour of another was not time specific despite the reality that the contextual data clearly demonstrates that patterns of development exist at composite sites. Therefore this study can only conclude that other forces were driving the initial decision to built and/or replace one structure in favour of another. It may be that a timber or stone circle performed a different function to that of a henge or indeed it may be the case that a henge monument and stone circle reflect a more permanent presence within a specific area by an increasingly larger group who possibly tired of the continual need to keep replacing the prone to rotting timbers.

Such a theory may explain why the identification of these monuments origins has remained problematic. This study duly suggests that the reasons for this lack of evidence lie with the reality that there may not actually be any formative sites remaining within the archaeological record to identify. While controversial this study is not suggesting that these structures have been lost to subsequent construction and damage *per se* but rather that primary manifestations of these monuments were actually a series of temporary structures that could either be packed up and moved or indeed dismantled and left as a group travelled from one geographical location to another.

It is clear that the mobile hunter gatherer lifestyle continued to be adopted despite the introduction of domesticates and it is clear that groups could move long distances with animals in tow (Parker Pearson 2007). The ability to remain periodically mobile would have unquestionably been of considerable advantage. If this was indeed the case then it is more than feasible that after the introduction or initial adoption of a belief system relating to the enclosing of a circular space that a series of temporary monuments could have been erected throughout the landscape; especially those made of timber. The findings of this study suggests that the origins of these three monuments were the result of populations creating small scale structures (such as small rings of inserted wooden stakes into the ground that defined an area or more importantly separated one area from another) that were of importance or a designated meeting point that could simply be packed away or indeed discarded. Such a theory could also see the gathering of stones that could simply be rolled into place enabling the circle to be disbanded or abandoned at will. As a consequence this would leave the origins of henge monuments to be bore out of the reality that larger groups that had become wholly established within one region and thus had the time and resources available to them to enable them to enclose pre-existing structures such as earlier timber circles or previous funerary activity, a practise which has been widely observed throughout the study area. It is therefore conceivable that once established henge monuments would be built in isolation and used to form large scale monumental complexes in their own right like has been observed at the site of Thornborough.

7.4: The Findings of the Analysed Case Studies & Other Relevant Evidence

This study sought to determine the extent to which analysis of the contextual data and datable evidence relating to timber circle, henge monument and stone circle sites could be utilised to identify possible building sequences. After an initial review of the available evidence (amassed during the compilation of the site catalogue Appendix III) this study quickly formed the opinion that in many cases an in depth review of all sites would have been futile as sufficient evidence is currently lacking within the archaeological record to make this a worthwhile exercise. It was therefore felt that the most productive means by which to undertake any sort of review was to compile a series of case studies whose data could be analysed in greater detail. It was the belief of this study that if building sequences did indeed exist then it would be possible to identify them at all sites, therefore the selection of a series of monuments at the cost of rejecting a much larger group would not have a negative impact upon the overall findings of this review. As such 15 composite sites were selected from the site catalogue (Appendix III) (which contained various combinations of the three monumental forms under investigation) that were as diverse in their overall appearance and plan as could be achieved from sites that were situated within the study area.

An initial review of the 15 case studies immediately identified two major factors that pointed to the likelihood that building sequences did indeed exist. Largely this evidence consisted of the cutting of earlier features by later constructions and the way in which the misalignment of structures at some sites clearly pointed to the primacy of one monument over the other as the reverse sequence would seemingly have been implausible in this studies opinion. Such a finding was unexpected as many previous studies have relied heavily upon the radiocarbon evidence to support proposed theories and chronological sequences, see Bradley 2011 for example. Nevertheless when the identified contextual data was considered together with the position of knowledge that had been gained as a result of the review of the absolute and relative dating evidence (Appendix II) it did produce a significant corpus that assisted firstly, in the rejection of several aspects of the currently accepted chronologies and secondly, in the creation of a new sequence that agreed with the available evidence more satisfactorily. The findings of this review on an individual site by site basis can be found in Appendix III (site catalogue) and an in depth appraisal of the 15 case studies can be found in appendix I (case studies) while the major findings of this review will be discussed here.

Initially the relevant selected case studies were analysed in order to determine whether sufficient evidence could be identified to support the individual elements of the currently accepted sequence of timber circle-henge monument- stone circle. Initially the validity of the timber circle-henge monument sequence was examined. The fact that is has been previously suggested that timber monuments always appear to pre-date the construction of henge monuments at relevant sites where these two structures have been found to occupy the same area (Gibson 2005), made this study of the belief that sufficient data must currently exist within the archaeological record. As such this study firstly identified many of the sites that have previously been used to support the sequence of timber circle-henge monument. The findings of this review were conclusive, to the extent, that it not only confirmed this sequence at many of the known sites but also identified this order at several others.

In most cases evidence that proved the primacy of the timber structure related to the close proximity in which the surviving post-holes and ramps were found to lay in relationship to the encircling henge ditch. This closeness was noted at several sites such as North Mains (case study No 11) and Woodhenge (case study No 15) where the post-ramps and post-holes of these respective timber monuments were found to lay in very close proximity to the inner lip of the surrounding class II and class I henge monuments (see Cunnington 1929 & Barclay 1983). While such proximity does not in itself prove the primacy of these timber circles the reality that the post-ramps of the outer ring at North Mains face outwards and the builders of the outer circle at Woodhenge would have been impeded by the already *in situ* inner rings of posts does appear conclusive. This is due to the reality that it would have meant that had the henge monuments at these sites already been in place the builders of the outer timber circles would have undoubtedly had to stand in the henge ditches to erect the posts into these positions; an act which would undoubtedly have been an unenviable task (Barclay 2005; Gibson 2005).

This theory is unquestionably supported by the datable evidence from North Mains where a sample of bone recovered from a burial that was found sealed beneath the henge bank (burial A) (GrA-24007) *circa* 2196-1920BC has been clearly demonstrated to post-date a sample of oak charcoal (GU-1354) from the primary fill of post-hole (A5) *circa* 2900-2200BC by as much as several centuries (Sheridan 2002). The identification of such data clearly confirmed that anomalies within the contextual data represented more than a series of architectural failings on behalf of those who constructed the discussed monuments. It was therefore apparent that this evidence could be reliably used to reconstruct chronological sequences. As a consequence the findings of this study are in full agreement with the proposed sequence for the site of Arminghall, where it has been noted that the alignment of the class IA henge monument and the horse shoe of eight large posts that it encloses at this site differed so significantly that it would seem impractical for these two structures to be contemporary, as was initially suggested by Clark in his 1936 corpus (Gibson 2005).

At Arminghall the post-ramps of the timber horse shoe all faced towards the south (suggesting that the timbers were brought to the site from this location) while the henge entrance broke the ditch and bank circuit in the south-west section (see figure 7). Arguably had the henge monument been the primary construction then the builders of the timber horse shoe would have taken the posts into the centre of the henge *via* its ample entrance. If this had been the case then this act would have surely been reflected within the arrangement of the post-ramps which would have adopted a Southwest – Northwest alignment accordingly. The reality that their observed alignment suggests that the posts had been dragged over the henge bank as opposed to being brought through the henge entrance arguably points to the likelihood that the henge was not *in situ* when the timber horse shoe was erected.

In comparison not all data was as open to interpretation as that discussed thus far. Examination of the Milfield North evidence (case study No 10) unquestionably demonstrated the primacy of the timber circle over the class II henge monument at this site on account of the fact that post-pipe three of the timber circle was noted as being found to have been overlain by a layer of re-deposited material which had slid from the sides of the henge bank (Harding 1981). This evidence conclusively proves the primacy of the timber circle at Milfield North as this material from the bank could only have arrived in this position after the post was no longer *in situ*. Unequivocal evidence like this from Milfield North was difficult to identify within the archaeological record; however the timber circle-henge monument sequence was found to be supported by the ceramic evidence from several other sites.

At Durrington Walls quantities of Grooved Ware were recovered from both phase I & II of the Southern and Northern timber circles (Wainwright & Longworth 1971). When this fact is considered in conjunction with the reality that far less substantial quantities of this ceramic form were recovered from the primary silts of the henge ditch (Parker Pearson 2007), and that a sherd of Beaker pottery was recovered from beneath the henge bank (Farrer 1918) it suggests that the timber circles at Durrington Walls were the primary constructions. Similar evidence was also noted at the site of Coneybury Hill were during excavation the upper fills of the post-holes mainly produced sherds of Grooved Ware, in comparison to the upper primary fills of the henge ditch which in addition to isolated sherds of Grooved Ware also contained later Beaker sherds (Richards 1990). Such data suggests that the henge ditch was excavated during the period at which there was a transition between these two ceramic traditions, whereas the posts of the timber circle had either already rotted or been removed prior to this point in time.

In addition to confirming the accuracy of current sequences this study also identified new data that supported the timber circle-henge monument sequence at composite sites. For example at Broomend of Crichie contemporary investigations suggested an alternative sequence of henge monument-timber circle (see Bradley 2011). Nevertheless while investigating the validity of such a claim this study noted the fact that the porch arrangement of the timber circle was situated in the north-east section of the structure which suggests that as opposed to being aligned directly with the southern entrance of the henge the timber circle was in fact aligned upon its own north-east – south-west alignment (see Chapter 6, figure 9). This study therefore concludes that these two structures should be considered as separate monuments and as such this data does not impact upon the validity of the timber circle – henge monument sequence but rather demonstrates that timber circles were continuing to be constructed in isolation despite the introduction of henge monuments as was discussed in section (7.3).

Such data led this study to conclude that the initial aspect of the currently accepted sequence of timber circle-henge monument (based upon the considered data) is indeed wholly accurate. It is clear that at some sites the contextual data may be open to interpretation; however the supporting non-conflicting evidence seemingly provides sufficient reassurances that make these data appear more than viable. Nevertheless despite the fact that this study has been able to establish this sequence it is still unclear in the majority of cases to what extent timber circles stood in isolation before they themselves or their remnants were surrounded by an encircling henge monument outside the already considered sites of Coneybury Hill, Durrington Walls and North Mains where the separation of these two monumental forms was unquestionably in excess of several centuries.

However during the analysis of the timber circle/henge monument data a series of anomalies were noted within the arrangement and configurations of the post-holes of many double and multiple timber circle sites that may be able to answer this unknown variable. Perhaps the most significant finding of this study that was born out as a result of this review was the identification of the reality that the post-holes of numerous double and multiple timber circle sites appeared to be the product of several phases of construction. It is clear that such data, while open to interpretation, appears sufficiently conclusive to question the theory that the lifespan or indeed presence of a timber circle at any site was short-lived and limited to the duration of time by which timbers could endure exposure to the elements. In proving that timber circles were the subject of continued renewal over a prolonged period of time it may indeed be possible to conclusively prove that timber monuments and henge monuments did not stand *in situ* together at composite sites and in turn confirm that timber circles, despite often being found enclosed by henges were not integral to their overall design.

The theory for the re-modelling or indeed rebuilding of many timber circles is supported by the reality that several sites were identified by this study where either a small timber circle was replaced by a more substantial setting of posts or an existing monument was altered and enlarged. Examples of such changes were noted at North Mains where an initial small timber ring (Ring B) that was made up of relatively slight timbers was clearly replaced by a much larger and more substantial ring of posts (Ring A). Evidence for which comes in the form of the fact that ring (B) was positioned off centre within circle (A) to the extent that in the southwest sections the posts of both circles were found to be in very close proximity to one another (Barclay 2005; Gibson 2005) (see case study No 11 & figure 2).

In the case of Machrie Moor I analysis by this study formulated a sequence that saw the main ring and encircled central horse shoe predating the outer ring of timbers. This is due to the reality that it was clear that several posts associated with the main ring had been replaced (Haggarty 1991, 62-63), while those linked to the outer ring displayed no evidence of being replaced thus suggesting they were a later addition (see case study No 9). However not all alterations were as simplistic as those that occurred at North Mains and Machrie Moor. The two timber monuments at Durrington Walls for example were clearly the subject of considerable and complex architectural changes that saw the single ring of timbers of Northern circle being replaced by two smaller concentric post circles, while the Southern timber structure that initially consisted of four concentric rings of timbers was later replaced by six rings of posts (Wainwright & Longworth 1971; Parker Pearson 2007).

The complete destruction and rebuilding of a timber circle was not limited to Durrington Walls. During the compilation of the Woodhenge case study (case study No 15) new evidence was uncovered by this review that suggested an alternative sequence for this site outside that which is currently accepted. This study believes that the six concentric rings of posts at Woodhenge actually represent the remains of two distinct phases of construction rather than the remnants of one singular complex structure. This is due to the fact that the post-ramps of ring C all face in a southerly direction which means that rings D-F could not have been *in situ* when the timbers of Ring C were erected, as these smaller posts would have impeded the use of the post-ramps associated with ring C (see figure 4). The initial construction at Woodhenge consisted of three concentric rings of posts, rings D, E & F. While phase II, (which was constructed after the phase I circles had either fallen into disrepair or been deliberately removed) constituted a much larger circle that had a more substantial setting of posts in its interior (Ring C) and an encircling ring of smaller timbers (Ring B) that had an entrance in the north-west. Ring B was either encircled by ring A or was replaced by this circle at a later date (possibly as result of the timbers of these outer rings being so slight in comparison to the inner rings).

This interpretation of the evidence from Woodhenge differs significantly from those proposed by previous studies (such as Piggott 1939 and Musson 1971 for example) but yet appears to be a more accurate reflection of the contextual evidence for this site as it takes into account all the observable architectural anomalies between Woodhenge's six rings of timbers. The identification of such architectural freedoms makes it clear that whatever the function of timber monuments it was not impeded by their overall appearance. It is therefore evident that care must now be applied during the interpretation of what are currently deemed double or multiple timber circle sites as it is clear that many previous interpretations of such arrangements of post-holes have been far too simplistic to the extent that entire phases of construction may have been overlooked (see the many attempts to ensure the contextual evidence supported the idea that timber circles at the likes of Durrington Walls, Woodhenge and the Sanctuary were roofed structures for example).

As highlighted above, such a sequence for the phased removal and replacement of timbers appears to be common at sites that have previously been classified as double and multiple timber circles. While the data from the analysed case studies is insufficient to challenge the authority of the accepted categories of single, double and multiple rings; it does call into question the means by which these structures may have evolved from one form to another as it is clear that some timber structures were the subject of continued alteration. Ultimately this may imply that the date ranges associated with more complex timber circles in particular may actually identify the point in time at which original less complex structures were altered rather than denote the introduction of a new architectural trend. However proving such a theory will remain problematic until the limitations relating to the accuracy of the available datable evidence have been satisfactorily overcome.

In light of the uncovered evidence relating to timber circles this study can only conclude that the initial element of the currently accepted sequence may need to be altered to **timber circle(s)** in order to reflect the fact that many timber circles at composite sites were clearly the subject of several phases of rearrangement or reconstruction. While this study has been able to confirm the accuracy of the

timber circle-henge monument sequence it was unable to uncover any evidence that supported the supposition that henge monuments pre-date the construction of stone circles at composite sites. This was in spite of the fact that it has previously been suggested that at sites where henge monuments and stone circles occur in unison the rings of stones are always the later construction. Indeed it has previously been proposed that henge monuments were in fact the prototypes of early stone circles (Burl 2000, 285). Nevertheless the findings of this study were in direct conflict with such a theory to the extent that this corpus would prefer to suggest an alternative sequence of **stone circle-henge monument**.

This is largely a consequence of the fact that it became clear during analysis that the stone rings and ovals of many sites displayed no discernible relationship with their respective encircling henge monument. In the majority of cases the stone circles were often off centre within the enclosed area or the stones were in such close proximity to the inner lip of the henge ditch that an alternative sequence of anything other than **stone circle-henge monument** would appear implausible. Analysis of the Stones of Stenness case study for example (case study No 12) revealed that it would have been virtually impossible to ensure that the twelve large stones did not tumble into the ditch had the henge already been *in situ* prior to the erection of the stone circle on account of the stones proximity to the henge ditch (see figure 16).

Comparable evidence was also noted at the site of Devil's Quoits as it was clear that the ring of 24 stones had no real alignment with the encircling class II henge bank and ditch nor did it have any observable entrance that lines up with either of those associated with the henge. Indeed the stone circle is positioned so far off centre within the henge that in the northern sector the stones lay in very close proximity to the ditch (Gray & Lambrick 1995). Similarly, at the site of Broomend of Crichie the primacy of the stone circle over the henge monument was previously proven on account of the fact that the two stone avenues that were associated with the enclosed stone circle were in no way aligned with the henge entrances to the extent that the breaks in the earthen bank and ditch cut across the lines of the opposing avenues (see figure 9).

Comparable evidence was also identified during the compilation of the Cairnpapple case study as there was clearly an observable misalignment between the egg shaped oval of stones and the class II henge monument (Piggott 1950) (case study 5). This noted misalignment caused several stones to block the northern henge entrance while the henge ditch clearly impinged upon what has been interpreted by this study as being the entrance to the centre of the stone circle in the southern section. Such evidence suggests that the encircling henge was added to this site after the stone circle had been constructed possibly as a means by which to enclose this and several other pre-existing structures, such as an earlier timber monument and several acts of structured deposition and funerary activity. Sufficient evidence was also noted during the compilation of the Avebury case study (No 2) to enable this study to propose that the two inner stone circles and the small surrounding earthwork of (Avebury 1) were the primary construction over the much grander (Avebury 2) earthwork and outer stone circle.

This is due to the fact that the two central stone circles are positioned off centre towards the southern area of the enclosed space formed by the outer stone circle and the earthen bank and ditch circuit. The two stone circles (the Beaker burials at the foot of which seem likely to have been added at a later date) are in close proximity to the stone avenue and may indeed be linked to this arrangement by means of the 'Ring stone' which stands between the limits of these two structures (see figure 19). It seems likely that these circles were surrounded by (Avebury 1) which may have merely defined these two structures (and possibly more) in this instance rather than taken the form of a henge (Smith 1965: Gillings & Pollard 2004).

The findings of the Avebury case study (No 2) suggest that after a considerable period of time had elapsed the footings of the outer stone circle were laid out while the surrounding (Avebury 2) henge (which clearly reduced the width of the pre-existing paired monolith causeway) was excavated. Radiocarbon data from this site (Cleal & Pollard 2004) (in the opinion of this study) appears to suggest that the stones of this later circle were gradually erected over a prolonged period of time, possibly as those erecting them waited for the sides of the henge bank and ditches to settle sufficiently.

The proposed evidence for the rejection of the currently accepted sequence of henge-stone circle is clearly open to interpretation in many examples; however analysed data from the Dyffryn Lane case study (No 8) produced indisputable evidence that supports this theory and may also therefore allude to the accuracy of the data presented above. This is due to the reality that recent excavations proved that the ring of seven stones pre-date the class I henge monument. In this case samples of hazel twig (Beta-223795) *circa* 2859-2469BC (which were recovered from the earthen mound that covered stones 18 and 19 and thus provided a *terminus ante quem* for the construction of the stone circle) clearly pre-date a sample of hazel charcoal recovered from a hearth found sealed beneath the henge bank (Beta-231249) *circa* 2618-2347BC which provides a *terminus post quem* for the henge (Gibson 2010).

Such data from Dyffryn Lane (which proves the stone circle stood in isolation for over two centuries) in conjunction with the data from standalone stone circle sites (considered in Appendix III) unquestionably demonstrates that rings of stones should not only be considered as monuments in their own right but should also be considered as pre-dating encircling henge monuments at composite sites. The findings of this study therefore denounces the accuracy of the currently accepted sequence of **henge monument-stone circle** in favour of a new and revised sequence that conforms to the considered data more suitably, that of **stone circlehenge monument**. Such a theory is in direct conflict to the sequence proposed by Burl, who suggested that henge monuments not only pre-dated the construction of stone circles at circle henge sites but were in fact prototypes for such structures (Burl 2000). Burl's hypothesis however can now be rejected on account of the evidence compiled by this study especially when data from the likes of Dyffryn Lane (Gibson 2010) and Broomend of Crichie (Bradley 2011) are analysed in detail as it clearly demonstrates that at least in these instances the stone circles pre-dated the construction of the respective henge by a prolonged period of time.

On establishing that both rings of timbers and stone pre-dated the construction of henge monuments at the considered sites this study sought to determine the final aspect of the chronological sequence. It has previously been suggested that timber circles always pre-date the construction of stone circles at composite monuments as a consequence of the widely observed practise of 'lithicisation' that has been identified at numerous sites (Gibson 2005, 33-34). During the analysis of the relevant case studies sufficient evidence was uncovered that proved conclusively that stone-holes could indeed be clearly demonstrated to cut earlier post-holes at many sites. Such data undoubtedly confirmed the currently accepted sequence of **timber circle-stone circle**.

In the majority of cases evidence was readily identifiable with post-holes clearly being cut by later stone holes at sites such as Temple Wood North, Machrie Moor I, the Sanctuary, Balfarg and Moncrieffe. For example at Temple Wood (North) (case study No 14) sockets 3, 5, 15 and possibly 1, 2, 10, 11, 12 and 13 all displayed signs of holding posts from the timber circle in the first instance and stones relating to the stone circle in the second (Scott 1998). While at Machrie Moor (case study No9), analysis highlighted the reality that a stone circle had been raised directly over the location of one earlier double ring and one single ring of posts at site I and XI respectively (Haggarty 1991, 60-76). Many of the stones had been placed equidistant between the pre-existing post-holes, however it was noted that the packing of post-hole (F211) that formed part of the main ring of timbers had been rearranged to form part of the foundation for stone-hole 9. Such stratigraphic interactions between these respective phases of construction undoubtedly prove the primacy of the timber circles at this site over the later stone circle (Haggarty 1991, 60-76).

The replacement of rings of timber by those of stone was not found to be limited to small scale sites. During the analysis of the evidence relating to the site of the Sanctuary for example (see Appendix III), several stone holes of ring (A) were noted to seal a series of earlier post-holes (including holes 7, 8 and 9) relating to an earlier timber circle during excavation (see figure 12). Such data from the Sanctuary conclusively proves the primacy of timber circle (A) over stone circle (A) at this site. Equally at the site of Balfarg six concentric rings of timbers, one with a porch arrangement were noted as being replaced by two later concentric stone circles (Mercer 1981). The primacy of the rings of timbers can be proven on account of the fact that stone-hole (S'3) which is associated with the outer stone circle clearly cut through several post pipes associated with timber circle (F). The fact that these post pipes could not have formed until the posts of timber circle (F) had rotted clearly proves that the construction of this timber circle pre-dated the construction of the outer stone circle (see figure 15).

Like Balfarg the timber monument at Moncrieffe was also noted as being replaced by two later stone circles. The primacy of the ring of timbers over the two stone circles and associated features at Moncrieffe was proven on account of the fact that stone-hole 4, which was associated with the first stone circle at Moncrieffe, clearly cut the infill of post-hole 9 of the timber circle (Stewart 1985). The second recumbent stone circle at this site also clearly post-dates the timber circle as aspects of this stone circle cut the much smaller stone circle which has been proven through the evidence above to post-date the ring of timbers.

However despite such unequivocal evidence existing within the archaeological record evidence from several contemporary studies at the sites of Croft Moraig (Bradley & Sheridan 2005) and Strichen (Phillips *et al*. 2006) have sought to reverse this accepted and seemingly substantiated sequence. Despite the arguments for these revised sequences appearing, on first inspection, well-reasoned, this study rejected the findings of these two studies in favour of a more conventional chronological sequence. The findings of the Croft Moraig case study (No 6) favour a sequence that consists of a ring of posts pre-dating the stone circle and accompanying outliers – central cairn/mound and shallow ditch – stone oval. This sequence was formulated on account of the fact that for while the timber circle and stone circle do indeed appear to share a similar alignment and axis, the primacy of the ring of posts can be demonstrated by the fact that the porch of the timber circle lies in very close proximity to stone 4 of the stone circle. This is in spite of the fact that there was sufficient area between stones 4 and 7 in which to fit the timber porch comfortably (see figure 13).

Arguably had the stone circle been *in-situ* prior to the construction of the ring of posts a more architectural practical approach would have been adopted with regards to the layout of the timber porch. It therefore seems more likely that the timber circle or 'hut' (Bradley & Sheridan 2005) as it has been referred to, was the primary construction at this site. This circle was subsequently removed and after a short period of time (if not immediately) the stone circle with its accompanying outliers (that may have been constructed to reflect the porch arrangement of the original structure) was erected upon a similar but not exact alignment. This theory is supported by the recent dating programmes of cremated bone which has highlighted that the ceramics associated with the destruction or 'levelling' of the timber circle at Croft Moraig actually date to the Later Bronze Age (Sheridan 2003, A & B), as opposed to the Neolithic as assumed by Piggott and Simpson during their 1956 excavation (Piggott & Simpson 1971).

These ceramics were recovered from the shallow ditch which was associated with a possible cairn that was constructed directly over the site of the timber circle and within the circumference of the stone circle (Sheridan 2003, A & B). The dating of the destruction of the timber circle to the Later Bronze Age, a period in which stone circles have a strong currency, makes the idea of such a quick replacement theoretically acceptable and would explain why the stone circle has a similar alignment to the earlier timber circle. A similar sequence of timber circle – stone circle is also proposed for the composite site of Strichen by this study. This is in spite of the theory proposed by Phillips *et al*. 2006 who suggested the primacy of the recumbent stone circle over the timber ring (see case study No 13).

The theory proposed by Phillips *et al*. 2006, is rejected by this study on account of their being numerous variables that may have restricted its accuracy. For example while there does indeed appear to be an observable alignment between the recumbent stone, the central post and the decorated stone there is no evidence to prove that this was a deliberate act (see case study 13 for full discussion). Equally the fact that the stone circle in no way respects the layout of the earlier ring of posts to the extent that the surviving post-holes were found to be positioned off centre and aligned towards the north-eastern section of the area enclosed by the stone circle suggests a timber circle – stone circle sequence, not the opposite. In addition even though grave (f23) lies in close proximity to the central post (see figure 14) it by no means makes these two features related.

This is due to the fact that Grave (f23) was cut into the material that made up the central cairn (which is believed to be associated with the recumbent stone circle) and therefore suggests that the two graves were a later addition to the stone circle and not the timber circle. This in turn suggests that the decorated stone did not originate from the grave and that the graves close proximity to post (f80) seems more likely to be a consequence of the site being reused over a prolonged period rather than these two features being contemporary events. In light of these two pieces of evidence it is reasonable to assume that the currently accepted sequence proposed by Phillips *et al*. 2006 is inaccurate. In light of this evidence the findings of this study proposes a more conventional chronology for the site of Strichen that sees the timber circle pre-dating the recumbent stone circle, rubble bank and central cairn (see case study No 13 for full discussion).

This review of the relevant case studies has been unable to find any evidence that contradicts the widely excepted sequence of **timber circle – stone circle**. In fact this study has uncovered sufficient evidence to confirm this sequence at sites where it was thought not to occur. At some sites, such as Temple Wood, the primacy of the rings of posts over those of stone has been proven beyond doubt on account of the fact that stone-holes can be clearly seen to cut earlier post-holes. While at other sites the evidence may be less obvious and rely on the alignments of the monuments; nevertheless it is equally as conclusive in the majority of cases and conforms to the currently accepted sequence. Recent publications relating to the sites of Croft Moraig and Strichen have put forward arguments that have suggested that these two sites do not conform to the accepted timber circle – stone circle sequence. Nonetheless as this study has highlighted the evidence in the case of Croft Moraig has been proven to be inaccurate and far from conclusive and open to interpretation in the case of Strichen. In light of this conclusion it seems more than acceptable to suggest that at composite sites where the remains of timber circles and stone circles have been uncovered timber circles do indeed always pre-date the construction of stone circles.

These data unquestionably proved that the currently accepted sequence of **timber circlestone circle** is indeed correct. This study was unable to identify any evidence that contradicted this accepted sequence with any degree of certainty despite contemporary excavations and reviews propagating an alternative hypothesis for several of the considered sites. In light of the evidence derived from this review of the case studies compiled for the purposes of this study it has been possible to clarify certain aspects of the currently accepted chronologies for the three monuments while also enabling the creation of a new order for other elements of the sequence.   Therefore based upon the considered data contained within the

15 case studies and remaining sites within the site catalogue (Appendix III) this study is in a position to propose a new sequence of **timber circle(s)-stone circles-henge monument** as it fits the findings of this research more suitably.

Of the sequence itself; **timber circle(s)** reflects the reality that at all the considered composite sites, where the remains of a timber circle was documented, the rings of posts were undoubtedly the primary construction pre-dating both stone circles and encircling henge monuments, of all classes, where applicable. The bracketed s has been applied by this study to reflect the fact that of the considered double and multiple timber circles all are believed to have been the subject of a considerable degree of remodelling or rebuilding. Such an addition to the sequence enables the fact that the remaining two structures have often been pre-dated by more than one timber circle, to be represented within the revised chronology. The second aspect of this sequence has been reconfigured to reflect the reality that this study uncovered sufficiently reliable data that proved how at all composite sites stone circles clearly pre-dated the construction of their respective encircling henge monument.

Like the timber circle data this sequence was not specific to the appearance or form of neither the stone circle in question nor the class of henge monument which had been constructed around it. While there may be a case in the future to add a bracketed s to the stone circle aspect of the chronology, at present this study was only able to uncover limited data in comparison to the timber circle evidence, thus such an addition was omitted on this occasion. Therefore in conclusion the findings of the review of the considered case studies (Appendix I) the remaining data held within the site catalogue (Appendix III) and the datable evidence (Appendix II) by this review are in complete agreement with a new and revised sequence of **timber circle(s)-stone circle-henge monument**.

7.5: <u>Conclusion</u>

The principal aim of this research was to determine the degree to which the currently accepted chronologies for timber circles, henge monuments and stone circles could be considered accurate. Upon fulfilment of this aim and on completion of the associated research this study is in a position to conclude the following; firstly that the overall currencies for these three monumental forms appear on the whole to be largely accurate with all the considered radiocarbon determinations (Appendix II) (despite the inherent limitations of this dating method see chapter 3) falling within the currently established perimeters for the inception, occupation and abandonment of these three structures. The reality that the majority of radiocarbon determinations have been found to, at best, only have an indirect relationship with the structure they have been used to date does not, in the opinion of this study, overtly affect these overall currencies.

This is due to the reality that even the less accurate determinations fall within the parameters which have been firmly established by those dates that have been found to provide a more reliable representation of the overall currencies for timber circles, stone circles and henge monuments (see Appendix II). However the variable degree of accuracy within the date lists for these three monumental forms has had a significantly negative impact upon both this studies abilities to establish inter site chronologies and building sequences at composite sites. Thus the compilation of the newly critiqued date lists that have been compiled for the purposes of this study should enhance and assist the findings of any future research in this area as they clearly differentiate between accurate and non-accurate data.

Secondly; it is clear that at present there is insufficient data within the archaeological record to accurately identify which (if indeed any) of the three monumental forms under investigation was the primary type of structure to be built within the study area. Largely this could be attributed to the fact that there is a significant lack of statistical variance between samples from all three types of monument that pre-date the centuries *circa* 3000BC. In hindsight this study is of the opinion that this inability lies more with the reality that it has proven difficult to ultimately determining what actually constitutes a formative timber circle, stone circle or henge monument site. For while architectural similarities can and indeed have been identified each of the considered sites within this entire corpus (not just those that date to the formative period) can be considered largely unique.

The inability to accurately define what architectural traits truly set these structures out from other Prehistoric monumental forms, (i.e. a series of traits that are replicated at every site with no divergence from an identifiable type-site), has resulted in the findings of this study concluding that tracking the development of these monuments with any degree of accuracy will remain problematic until scientific dating techniques advance sufficiently to overcome their inherent limitations. Equally attempts to determine whether the origins of these structures lay with other monumental forms such as round barrows and causewayed enclosures proved equally as futile. This was due to the fact that it was apparent that for while earlier monumental forms did indeed display some architectural traits that could be considered similar to several of those displayed by the three monumental structures under consideration, a significant degree of artistic license and imagination would need to be applied in order to make any such link appear viable.

It is the opinion of this study that for while there are a series of architectural similarities between a number of other similar forms of monuments there is no clear or indeed direct and tangible line of progression from one group to another that could be identified, apart from the fact that the radiocarbon evidence demonstrated that they were statistically earlier than the sites considered by this review. As such the true origins of timber circles, stone circles and henge monuments have remained elusive to the overall findings of this investigation (see Appendix III, for individual site discussions). Thirdly; this study has been able to prove that the currently accepted sequence of **timber circle – henge monument – stone circle** that has regularly been cited during the interpretation of composite sites is largely inaccurate.

The findings of this review (in light of newly available evidence and new interpretations of existing data) have uncovered sufficient information to prove beyond reasonable doubt that this series should be replaced by a new sequence, that of **timber circle(s) – stone circle – henge monument**. While it may appear on first inspection that this study is merely advocating the replacement of one orthodoxy or sequence with that of another it is clear that this revised order unquestionably reflects contemporary understanding of these monuments more accurately than the now increasingly disproved original sequence.

This is due largely to the fact that it is apparent that in many cases what have often been termed double and multiple timber circle sites have been found to actually be the result of several successive phases of construction. Such changes have often been documented as denoting the historical need to replace elements of these circles over time as this perishable building material deteriorated. Nevertheless this study has been able to prove that at the considered sites grander and much larger timber circles were seen to replace pre-existing rings of posts, often it seems after a prolonged period of time (see chapter 6 for example).

Such an interpretation is in direct conflict to previous thinking, which rarely deviated from a double and/or multiple rings of timbers hypothesis; unless direct conflicts were observed between the negative features associated with post-holes or post-ramps during excavation, like were witnessed at the site of Oakham. In spite of such theories being well established within the archaeological record this study is of the belief that the identified data (see chapter 6) will stand up to scrutiny and is duly sufficient enough for this review to note its importance within the sequence by annexing a bracketed **(s)** after the primary element of the chronology so that it now reads **timber circle(s)**.

It is well documented that timber circles have often be noted to pre-date both stone circles and henge monuments of all classes at composite sites (Gibson 2005). This study found no evidence to question this theory after reviewing the data from the most noteworthy of sites; indeed it actually uncovered more supporting data from sites such as Strichen, Croft Moraig and Broomend of Crichie where recent studies had imposed an alternative sequence (see case studies 4, 6 & 13). Indeed a major finding of this study was that it enabled the reversal of a sequence that has been in place within archaeological theory for several decades, that which considers either stone circles as being intrinsic to the overall idea of henges or that they were a later addition to pre-existing henge monument sites (Burl 2000).

Contemporary thought and excavations have more recently questioned this sequence and it is the opinion of this study that it has been right to do so. This is due to the fact that this review could find no evidence (contemporary or historical) that denoted the primacy of a henge monument over a stone circle at any of the considered composite sites. Indeed this study could identify only minimal evidence at sites such as the Ring of Brodgar (where any form of sequence proved difficult to identify) that may suggest that encircled rings of stones were contemporary with the surrounding earth work. It is the belief of this study that for while some henge monuments unquestionably predate some rings of timber and stone (see date lists compiled in Appendix II) their overall purpose was clearly somewhat different at composite sites. The evidence collated here suggests that at composite sites the henge monument was always the last structure to be constructed. It may be the case that the much grander (in most cases) earthen bank and ditch was a means by which to enclose pre-existing structures and to mark a far more impressive and grander monument within the landscape. Such a theory has recently been investigated as a means by which the henge was designed to contain or indeed maintain the mysteries associated with a pre-existing structure. This theory carries a significant degree of credence given the fact that the constructed elements of a henge are the reverse of many previously observed defensive structures (Gibson 2004).

In light of such evidence this study can only conclude that the sequence of **timber circle(s)stone circle-henge monument** was replicated widely throughout the study area with regards to composite sites despite there being no hard and fast rule for building one type of structure in favour of another at any real point throughout the period *circa* 3200-1000BC as all three structures can be observed to pre-date the remaining two in multiple instances. It seems unlikely that this was a consequence of the reality that timber circles, stone circles and henge monuments fulfilled a different function within the societies that built them but rather that the type of monument chosen merely reflected the needs of the population or indeed the fashions of the times with regards to which monument type was chosen.

It is rather less likely that these three very different types of monument relate to three different cultural groupings that replaced or adapted pre-existing structures with their own interpretation or representation of a similar idea. Consequently in spite of the overall findings of this study, such a conclusion requires it to return to the theory originally postulated by Kendrick in his 1932 corpus that was discussed in chapter two which clearly stated that there is a clear link between these three monumental forms, a link which to date has still to be truly established and understood. This is due to the reality that despite this investigation of these three monumental forms benefiting from a greatly superior wealth of data and the advantages of scientific dating methods this study can still only replicate Kendrick's initial idea that timber circles, stone circles and henge monuments were some type of ceremonial site, i.e. 'temples' or 'meeting places' that were not burial places (Kendrick 1932, 80).

In conclusion the overall findings of this corpus have undoubtedly determined the degree to which the currently accepted chronologies for timber circles, henge monuments and stone circles can be considered accurate to the extent that it is in a position to conclude not only that they are incorrect but in many cases were based upon inaccurate and unreliable data. The evidence uncovered by this study has not only been sufficient to enable the rejection of the current sequence of **timber circle - henge monument - stone circle** but has also proved adequate to enable a new and more reliable chronological sequence to be established, that of **timber circle(s) - stone circle - henge monument**. It is unfortunate that, to date, insufficient evidence exists within the archaeological record to enable this study to truly determine the ultimate origins of these three monuments; however it has been able to determine the accuracy of the data that has previously been used to calculate the overall inception, occupation and abandonment of these three monumental forms. The main achievements of this study are that it has identified several new pieces of data by subjecting both aged evidence and contemporary studies to the same form of critical analysis. It has created a series of databases, site catalogue and compiled several case studies, all of which clearly differentiate between accurate and inaccurate data. As a result this study has achieved its overall aim that was set out at the start of this research (1.1) and duly presents its overall findings in the form of a postgraduate dissertation.

7.6: Suggestions For Future Research

The findings of this study have undoubtedly highlighted that reviewing existing data within the archaeological record can lead to new evidence being uncovered. This in turn ultimately enabled a new position of knowledge to be gained with regards to how these monuments developed. In light of this fact it is clear that there is an unquestionable need for the work of this study to be extended to incorporate all known timber circle, stone circle and henge monument sites so that a clear and unbiased appraisal of all structures can be established. In doing so it is likely that further evidence will be uncovered, while the analysis of the resulting critiqued date lists would provide an even more accurate picture of how these monuments developed. It is also apparent that there is an unquestionable need for further research into how these three monumental forms came into existence. Did they develop from pre-existing Prehistoric structures? Where they introduced into Britain from what is now continental Europe? Or did they evolve organically as the lifestyles of those living within the study area changed? Ascertaining such knowledge would assist greatly in our understanding of timber circles, stone circles and henge monuments and would therefore be more than a worthwhile undertaking for any future investigation.

Contemporary studies that have sought to investigate not only the sites themselves, but also their local environs and any possible links that they may have to other monumental forms have had significant success. Arguably for the accuracy of the data analysed by this study to be truly ascertained there is a requirement for future large-scale excavation programmes that target possible or known interactions between constructed features. Equally there is also a need for future excavations to adopt correct sampling strategies with regards to the recovery of datable materials. This will restrict the likelihood of future research being affected by the situation that this study was presented with i.e. date lists that are littered with unreliable data.

At present the most effective method of achieving this would be through the adoption of Bayesian statistical modelling to reassess all the radiocarbon data contained within this study and the larger archaeological record as a whole. As discussed in section 3.6 such an exercise while well beyond the remit of this study, has proven useful during the analysis of other similar monumental forms. In light of the data produced here it is clear that the Bayesian statistical approach would also now be able to provide a more accurate picture of the inception, development and ultimate abandonment of timber circles, stone circles and henge monuments. This is due to the fact that this study has been able to provide a series of criteria by which the currently available data can be judged with regards to its accuracy. Now that clear lines of distinction can be drawn between accurate and non-accurate data the precision of any result produced by Bayesian analysis would be greatly improved as our 'prior beliefs' would be based upon reliable data that has been the subject of critical evaluation.

Appendix I

Case Studies.

List of case studies.

1. Arminghall
2. Avebury
3. Balfarg
4. Broomend of Crichie
5. Cairnpapple Hill
6. Croft Moraig
7. Durrington Walls
8. Dyffryn Lane
9. Machrie Moor I
10. Milfield North
11. North Mains
12. Stones of Stenness
13. Strichen
14. Temple Wood (North)
15. Woodhenge

Case Study Nº 1: Arminghall.

5.3.1: Description

Class IA henge monument enclosing a horseshoe of 8 large posts set in post-holes with adjoining substantial post-ramps facing to the south.

5.3.2: Plan/Diagram

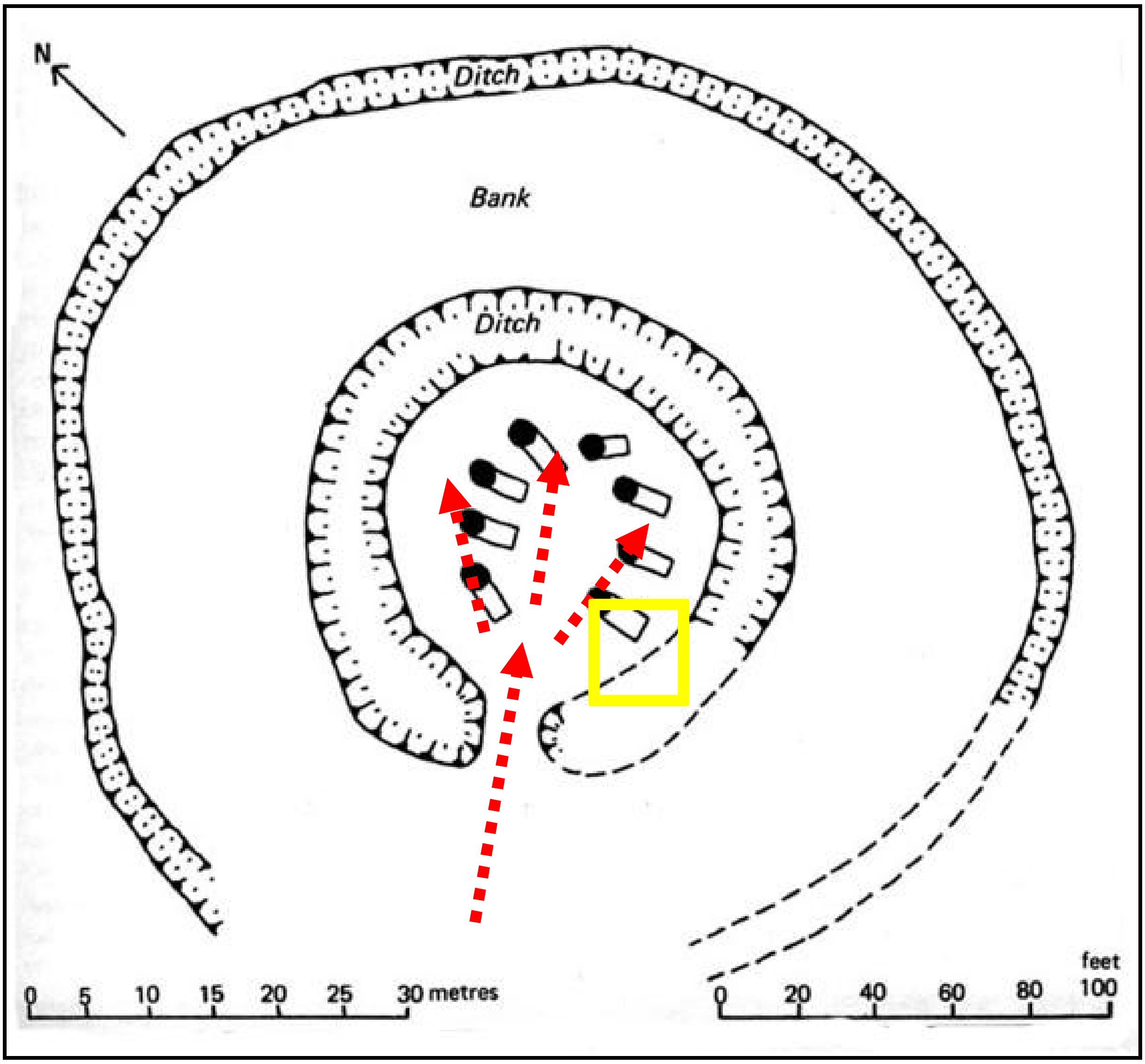


Figure 7. Plan of the constructed features at Arminghall. (From Clark 1936, with Amendments). Figure demonstrates the alignment the post-ramps would arguably have taken had the henge monument been the primary construction at this site (Red arrows). Figure also demonstrates the proximity of the post-ramps to the henge ditch (Yellow box).

5.3.3: Dimensions & Orientations

Henge; Internal diameter, 25-27m, inner ditch 7.5-9.5m wide, 2.3m deep below modern surface, causeway 2.6m wide, bank 0.25 m high, inner berm 1.1m, outer berm 0.8m, outer ditch 3.6m wide, 1.4m below modern surface. **Orientation:** SW facing entrance.

Timber horseshoe; 8 posts, 13m wide, postholes 0.3m wide, 2.4m deep. **Orientation:** open to the SW, post-ramps, all south facing.

5.3.4: Assessment of Contextual Data

Clark's 1935 excavation at the site of Arminghall uncovered the remains of two distinct structures, a class IA henge monument and a horse shoe of eight large posts (Clark 1936). Clark believed that these two structures were contemporary and envisaged a monument that consisted of a timber circle that was enclosed within an earthen bank and ditch (Clark 1936). However a more recent review of the contextual data (Gibson 2005, 70-72), has suggested that such an interpretation is unlikely owing to a series of identified anomalies within the contextual data. For example it is significant that the post-ramps used to erect the posts of the timber horse shoe all face towards the south. Such detail suggests that the timbers were brought to the site from this direction.

The alignment of the post-ramps is in stark contrast to the positioning of the entrance of the class IA henge monument which is located in the south-west section of the ditch and bank circuit (see 5.3.2; figure 7). With this detail in mind it seems reasonable to suggest that had the henge monument been the primary construction at Arminghall then the builders of the timber monument would have taken the posts into the centre of the henge *via* its ample entrance (Gibson 2005, 70-72). This practice of entering through the pre-existing henge entrance would arguably be reflected in the alignment of the post-holes to the extent that they would all run along a Southwest – Northwest alignment. Equally this route would be undoubtedly far more economical and effortless than the alternative of traversing unnecessary obstacles, such as dragging or lifting the posts over the bank and through the two ditches of the henge, had they already been *in situ* (Gibson 2005, 70-72).

The primacy of the timber horseshoe over the henge monument is also implied by the proximity of several post-holes and ramps to the inner henge ditch. The post-holes at Arminghall measured on average 2.4m deep which suggests (using the accepted matrix) that the posts themselves were *circa* 7.2m in length. Therefore had the henge been the primary construction at this site then those tasked with erecting the posts (5-8 in particular) would have undoubtedly had to stand in the henge ditch to raise the posts from this direction owing to the fact that the post-ramps terminate in such close proximity (*circa* less than 3m in the case of post-ramps 5-8) to the southern part of the inner ditch (see 5.3.3, figure 7 yellow box). Such data clearly points to the likelihood that at the site of Arminghall the timber horseshoe pre-dated the construction of the class IA henge monument.

5.3.5: <u>Assessment of the Datable Evidence</u>

The recovered datable evidence (both absolute and relative) from Arminghall is limited; nevertheless it is sufficient to provide a timeframe for the constructed elements of this monument. To date there remains only one radiocarbon determination from this site which was subjected to radiocarbon analysis three decades after the initial excavation (Barker & Mackey 1963). The sample itself comes from a fragment of oak charcoal (BM-129) which was recovered from the base of post-hole 7 and dates to the period *circa* 3628-2696BC. Laboratory analysis suggests that the sample derived from the centre of a oak timber which had an estimated diameter of over 3 metres and is therefore likely to have been upward of 120years old when felled (Barker & Mackey 1963). Statistically (BM-129) is considerably earlier than many other dates relating to timber circles analysed for the purposes of this study (see Appendix II). It has been suggested that this early date may be a consequence of the 'old wood' effect (Barker & Mackay 1963).

Despite the limitations imposed upon the accuracy of a radiocarbon determination affected by the 'old wood' problem (See 3.3), (BM-129) has been considered largely accurate by this review on account of the fact that it provides a *terminus post quem* for the erection of the timber circle and fits within the currently accepted chronologies for such monuments. During the excavation of the inner henge ditch sherds of rusticated Beaker pottery were recovered from the primary silts (Clark 1936). As a consequence of their location it is reasonable to suggest that these sherds entered this context within a relatively short period of time after the ditch had been initially excavated and can therefore be considered to provide a *terminus ante quem* for the henge monument. This would place the creation of the earthen bank and ditch either prior to or within the period *circa* 2600-1600BC. When these data are compared to the radiocarbon determination recovered from post-hole 7 (even when the limitations discussed above are taken into consideration) it is apparent that the timber horse shoe at Arminghall pre-dated the construction of the encircling henge monument by as much as 1000 years (Gibson 2005, 72-75).

5.3.6: Conclusion

The primacy of the timber horseshoe over the class IA henge monument at Arminghall is clearly demonstrated by both the contextual data and the datable evidence. For while there are no stratigraphic interactions between the constructed features sufficient anomalies exist within the contextual data (such as the proximity of the post-ramps to the henge ditch and the misalignment of these post-ramps and the henge entrance) to suggest that the timber horseshoe was erected prior to the construction of the encircling henge (Gibson 2005, 70-72). The datable evidence, although limited, supports this chronological sequence for the site of Arminghall despite the fact that there are several factors, such as the 'old wood' problem that may have affected the absolute accuracy of the radiocarbon determination (BM-129) (Barker & Mackay 1963). Analysis of the datable evidence also confirms that the primacy of the timber horseshoe over the henge was not a consequence of poor architectural planning (which would make the posts and henge monument largely contemporary) but rather the replacement of one monumental form by another several centuries after the initial structure is likely to have long since decayed and fallen into disrepair.

5.3.7: Verdict

TIMBER HORSESHOE - HENGE MONUMENT.

Case Study Nº 2: Avebury.

5.4.1: Description

Two phase large Wessex henge, whose irregular ditch and large bank are broken by four entrances (one of which in the SSE joins the Kennet Avenue). A circle of 98 massive stones stands within the ditch, which in turn encircles two off centre and opposing stone circles each of which has its own central stone feature.

5.4.2: Plan/Diagram

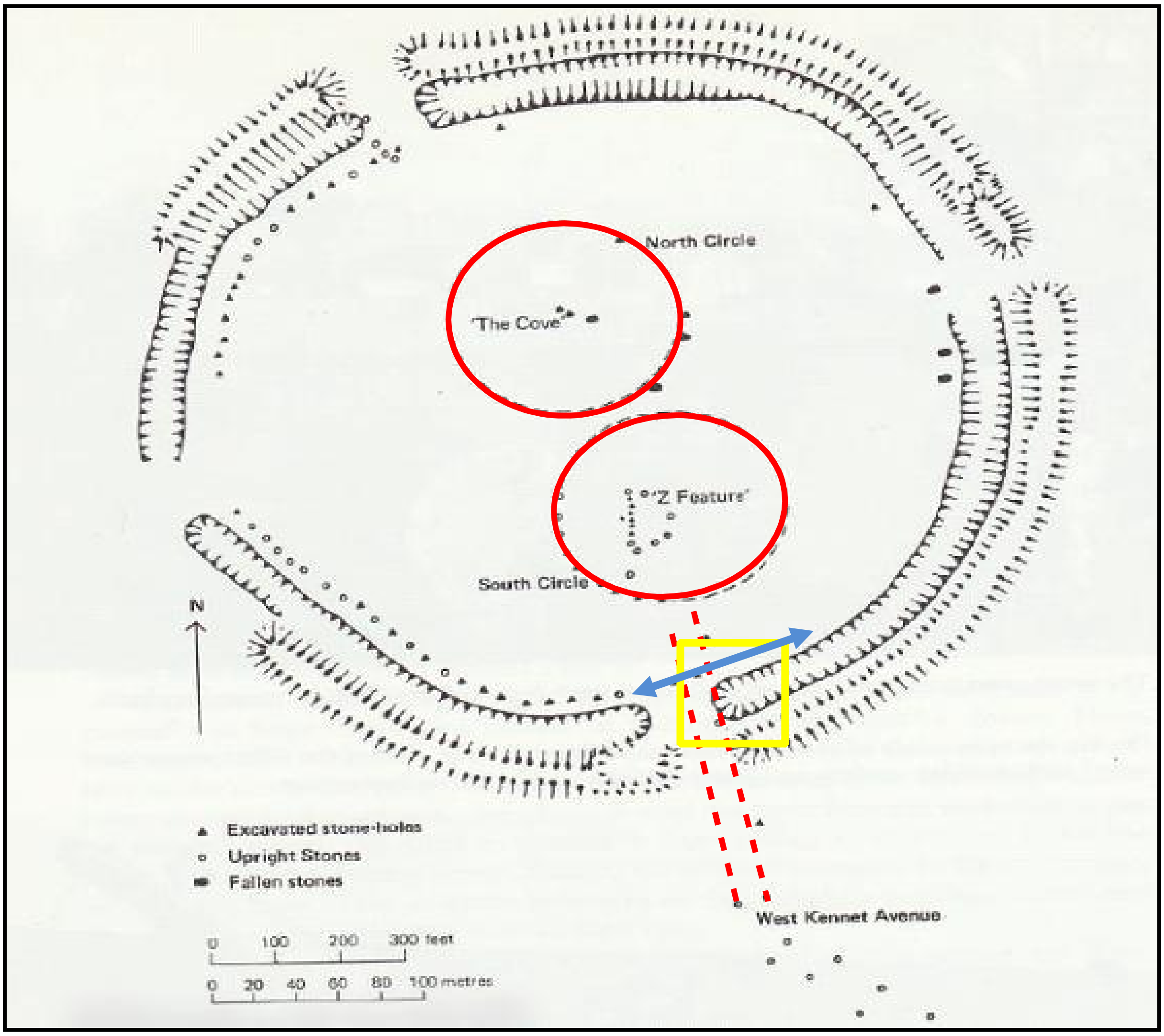


Figure 21. The proposed sequence for the site at Avebury. (From Smith 1965, with amendments). Figure demonstrates how the link between the inner stone circles and West Kennett Avenue was impeded by the later henge and outer stone circle.

5.4.3: <u>Dimensions & Orientations</u>

<u>Henge</u>; Internal diameter, 347m, ditch, 21m wide at upper edge 2.5-5m wide at the bottom, depth 7-10m. Bank, 30m wide surviving to a height of 5.5m. **Orientation;** Two opposing entrances NNW-SSE and NNE-SSW.

<u>Outer Stone Circle</u>; 329m in diameter, 98 stones.

<u>Inner circle</u> (S) 103m in diameter, 29 stones.

<u>Inner circle</u> (N) 97.5m in diameter, 27 stones.

5.4.4: <u>Assessment of Contextual Data</u>

The site of Avebury consists of a large bank and ditch circuit that is broken in four places and encloses a large ring of 98 stones. Within the large stone circle lay two off centre and opposing smaller stone circles each of which have their own central stone feature (Smith 1965) see also (figure 21). Historically the establishment of an accurate chronological sequence for this site has remained difficult, especially since the discovery of the earlier bank and ditch (Smith 1965: Pitts 2001). This is largely a consequence of the reality that firstly; there are no real observable stratigraphic interactions between built features (with the exception of the two phases of henge monument) and secondly; insufficient variance exists between dated samples recovered from features that are directly associated with the primary phases of construction (Pollard & Cleal 2004, 120). Despite such limitations the findings of this study suggest that the two inner stone circles and the (Avebury 1) bank and ditch were the primary constructions at this site, before they were replaced at a later date by the (Avebury 2) bank and the outer stone circle.

This is due to the fact that analysis of the positioning of the two central stone circles highlights the reality that these features are positioned off centre towards the southern area of the enclosed space formed by the outer stone circle and the henge monument. The proximity of these two circles to the stone avenue suggests that they may have been linked to this structure by means of the 'Ring stone' which stands between the limits of both these constructions (see figure 21, features marked out in red). The fact that Beaker burials have been found at the foot of several stones associated with these two circles (Smith 1965, 244249) has no impact upon the suggestion that these were the primary constructions as it seems more likely that these burials were later insertions. This study suggest that the two inner stone circles were encircled by the bank and ditch of (Avebury 1), a structure that may have taken the appearance of a more conventional one or two entrance henge but may also have merely been a segmented ditched enclosure . This is due to the reality that the true extent and indeed overall appearance of (Avebury 1) is impossible to determine owing to the limited excavations at this site (Pitts 2001: Gillings & Pollard 2004).

It has been suggested that (Avebury 1) followed a similar alignment to the later four entrance henge (Avebury 2); however this may not necessarily be the case. What seems more likely is that the bank and ditch arrangement of (Avebury 1) was broken at least once at the point that the avenue met the southern inner stone circle. The fact that a distinct layer of turf formed upon the top of the bank of (Avebury 1) (Burl 2002), suggests that this monument stood unchanged for a prolonged period of time. Any later alterations to this pre-existing structure, outside of those that have already been identified, have arguably been destroyed by the much larger structure of (Avebury 2). Whichever scenario is accepted it is unquestionable that a fundamental change occurred at this site that signalled a significant period of remodelling. This saw the size of the henge monument vastly increased with the material for this originating from the ditch of (Avebury 1) where a step was observed to have been cut into the side of the ditch (Smith 1965: Gillings & Pollard 2004).

It is clear that this alteration post-dates the Kennett avenue owing to the reality that the bank and ditch impinges upon the original line of the paired stones (see figure 21, yellow boxed area) and therefore by association the inner stone circles. The point at which the outer stone circle was added to this site has proved problematic to determine. It has been suggested that this ring of stones may have been contemporary with the secondary henge monument at Avebury (Burl 2002). The findings of this review suggest that to a certain extent this may in deed have been the case. This is due to the fact that this study envisages a scenario where preparations for their placement of the outer stone circle within the boundaries of the henge had already been made as the ditch and bank of the secondary henge were being formed.

It is feasible to suggest that the stone holes had already been excavated in preparation for the stones, which were laid on the ground surface and erected over a prolonged period of time, as the henge was excavated around them (for the alignment of the outer stone circle, see figure 21, blue arrow). Support for this theory lies with the observation that the radiocarbon evidence from Avebury suggests that although the henge was the primary construction the stones were erected within the relevant stone-holes within a short period of time (see 5.4.5). This could have been as a consequence of the fact that the stones were not erected until the initial slippage and consolidation of the freshly excavated ditch and bank had ceased. Such a hypothesis is further substantiated by the fact that several stone holes were observed to have been the subject of remodelling during excavation, with many appearing to have either held or been prepared to hold a stone of one form but while being found in actuality to hold a monolith of a different size and shape (Burl 2002).

5.4.5: Assessment of the Datable Evidence

Despite the reality that the site of Avebury has been the subject of numerous excavations and prolonged investigation the volume of recovered datable materials is limited. Nevertheless several of the radiocarbon determinations associated with the henge monument are of considerable use as the dated samples were from short lived materials that were recovered from primary contexts. For example several dated samples of antler recovered from the base of the henge ditch that were all statistically similar, such as (OxA-12555) *circa* 2834-2472BC, (OxA-12556) *circa* 2836-2472BC, (OxA-12557) *circa* 2836-2474BC and (HAR-10502) *circa* 3329-2630BC clearly suggest that the excavation of the Avebury 2 henge ditch occurred *circa* the 26th century BC. However it is important to note that (OxA-12555) and (OxA-12556) were derived from the same antler that initially produced the determination (HAR-10502) (Pollard & Cleal 2004, 121).

The remaining determinations of note relating to the henge monument derive from materials that were found sealed beneath the henge bank. For example (HAR-10500) *circa* 30112492BC and (HAR-10063) *circa* 3338-2886BC came from analysed fragments of charcoal while (HAR-10325) *circa* 3635-3112BC was a fragment of animal bone. All three of these samples provide a *terminus post quem* for (Avebury II) however sample (HAR-10325) can be considered more reliable on account of the fact that this sample derives from a short lived material. Statistically these three samples from beneath the henge bank are marginally earlier than those recovered from the base of the henge ditch, which would be as expected and therefore duly supports the suggestion that the (Avebury II) earthwork dates to the period *circa* the 26th century BC.

While the radiocarbon dates associated with the henge monument at Avebury can be regarded as being useful in establishing the point in time at which the secondary earthwork was constructed those that have been used to date the erection of the outer stone circle at this site are considerably less reliable. This is due to the reality that at best the dated samples recovered from the excavated stone-holes can only provide a *terminus post quem* for the erection of the stones. For example (HAR-10327) *circa* 2576-2043BC was a sample of animal bone from stone-hole 44, while (OxA-10109) *circa* 2021-1741BC skull fragment and (HAR-10062) *circa* 2896-2485BC charcoal, were both samples from stone-hole 41 of the outer stone circle (Pitts & Whittle 1992; Pollard & Cleal 2004). The disturbance noted in stone-hole 41 makes it unclear at what point in time these dated samples entered this context as it is equally tenable that they may have been present within the old land surface, became incorporated into the back fill or even been placed within the stone-hole as the stones were re-erected at a later date. The ambiguity of these dates is confirmed by the fact that despite several of them originating from the same stone-hole there is a significant degree of variance between the respective determinations, which suggests they were not all produced by the same event.

5.4.6: Conclusion

The establishment of an accurate sequence for the constructed features of Avebury has proven difficult. Nevertheless this study noted sufficient anomalies within both the contextual data and datable evidence (some of which have previously been identified by Smith 1965, Burl 2002, Pitts 2001 and Pollard & Cleal 2004) which enabled phases of construction to be identified. This study is therefore in a position to suggest that the initial construction consisted of two opposing stone circles that were linked to the Kennett Avenue that in turn were surrounded by an earthen ditch and bank that was broken by at least one entrance that may or may not have taken the appearance of a henge monument. Excavations proved that this primary earthen structure was later replaced by a much larger earthwork that took the appearance of a four entrance Wessex henge. It seems likely that this new earthwork was accompanied by a circle of 98 large stones which were erected upon the inner lip of the earthwork, and possibly rearranged as the slippage of the sides of the henge ditch and bank ceased. The datable evidence from Avebury is insufficient to enable accurate chronological sequences to be established for all the constructed features at this site. Nevertheless the radiocarbon data has proven sufficient to enable previous studies to determine that the earthwork relating to the (Avebury 2) henge was constructed circa the 26th century BC (Pollard & Cleal 2004).

5.4.7: Verdict

INNER STONE CIRCLES (N) & (S) - AVEBURY I – AVEBURY II & OUTER STONE CIRCLE.

Case Study Nº 3: Balfarg.

5.5.1: Description

Class I henge monument that enclosed within its heavily eroded interior; six concentric timber circles (one of which had an accompanying porch arrangement) and two concentric stone circles.

5.5.2: Plan/Diagram

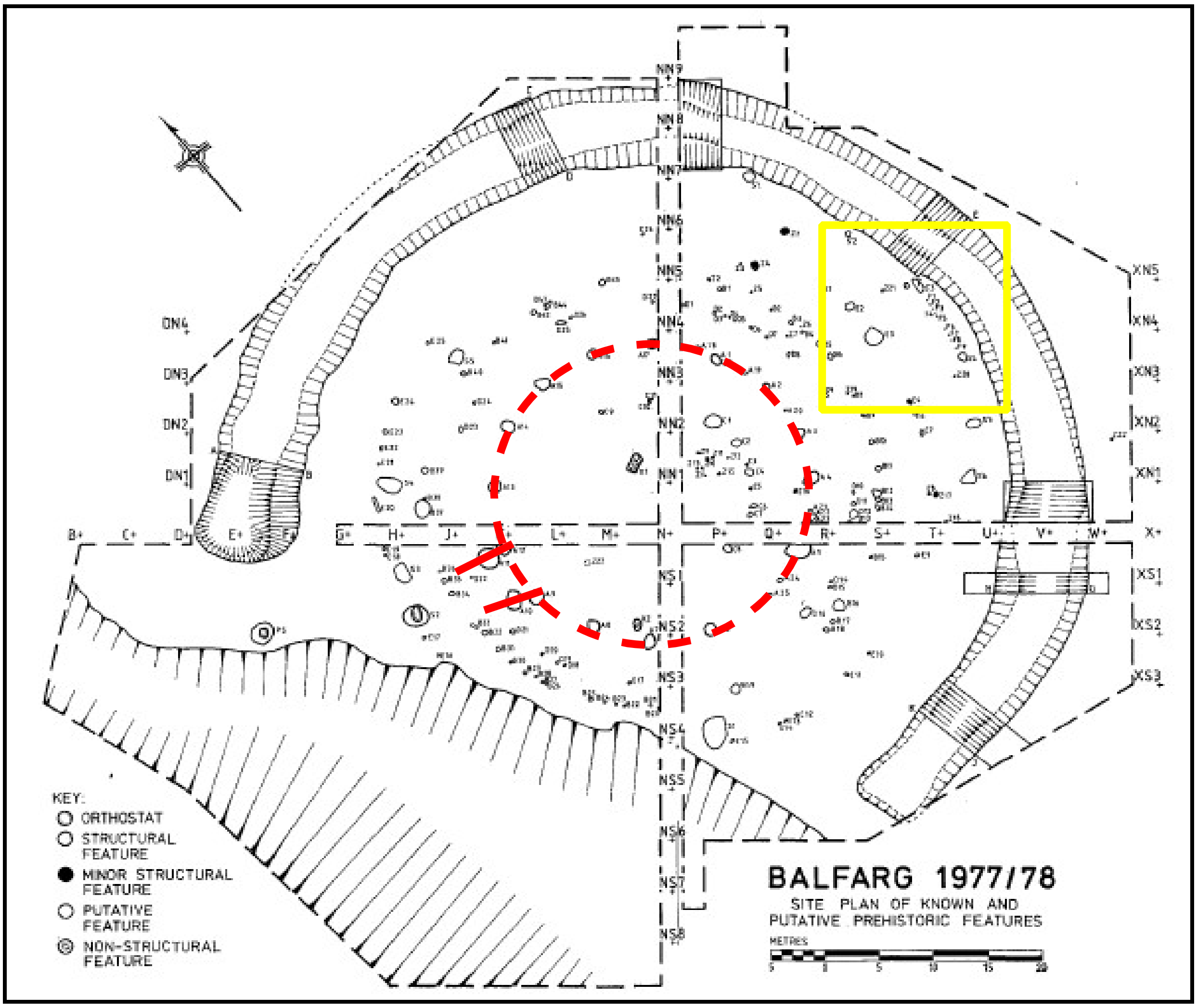


Figure 22. The features of Balfarg. (From Mercer 1981, with amendments). Figure shows Ring A (red) and the cutting of post-holes and stone-holes by later features (Yellow square).

5.5.3: Dimensions & Orientations

Henge; 65m in diameter, ditch 8m wide, 2.5m deep, berm 2m wide, bank 10m wide.

Orientation: South-west facing entrance.

Timber circles; Circle A, 15 posts 25m in diameter. Due to the large-scale impact of erosion upon the post-holes of the other 5 timber circles the number of posts that made up each circle is uncertain; however their diameters can be ascertained. Circle B, 47.6m; Circle C, 15m; Circle D, 41.7m; Circle E, 50 and circle F, 71.4m.
Stone circles; Outer circle; *circa* 24 stones, 65m in diameter. Inner circle; *circa* 12 stones *circa* 50m in diameter.

5.5.4: Assessment of the Contextual Data

A review of the excavation report relating to the site of Balfarg highlights the reality that the interior of the henge monument had been severely damaged prior to archaeological excavation (Mercer 1981, 63). As a consequence it has proven problematic for this study to establish an accurate chronological sequence for the class I henge monument, six rings of concentric posts and two stone circles at this site (Mercer 1981). Nevertheless analysis highlighted that timber circle (A) was made up of a series of more substantial posts than those of the remaining five circles. This study has noted elsewhere at sites like Woodhenge (case study 15) that such anomalies in post size often indicate that these multiple rings may not have been contemporary constructions. Analysis of the layout of ring (A) at Balfarg demonstrates that posts (A11-A12 and A9-A10) form opposing double post alignments that in the opinion of this study form a probable entrance into the centre of this circle (see figure 22, features marked in red). It seems likely that this ring enclosed a horse shoe or arc of much slighter posts that were made up from the timbers of ring (C).

The primacy of ring (A) and the associated ring (C) is suggested by this study on account of the fact that the nature and lay-out of the remaining rings (which are mostly of slight posts and take the appearance of palisade type structures) appear to enclose the area defined by ring (A) to the extent that several posts relating to all the outer circles block the entrance of circle (A). It may be the case that the posts of circle (A) were either still *in situ* or visible when the outer rings were erected as some of these outer circles appear to mirror (if not exactly) the alignment displayed by circle (A), however the level of destruction and erosion of the postholes at Balfarg makes such a theory impossible to prove with any degree of certainty.

In comparison the primacy of the timber circles over the class I henge monument can be proven far more conclusively. This is due to the actuality that the inner edge of the henge ditch can be clearly seen to cut the outer ring of posts (circle F) in the eastern section to the extent that the elements of this circle were no longer visible (see figure 22, area denoted in yellow). As circle (F) is undoubtedly associated with several of the remaining inner rings of posts and seems likely to post-date circle (A) and (C), such data proves that the henge postdates the construction of all the timber circles. Equally as clear is the evidence that proves that the two stone circles at Balfarg also post-date the timber monuments. This is due to the fact that stone-hole S'3 from the outer ring of stones was observed to cut several post-pipes associated with timber circle (F) (see figure 15) (Mercer 1981, 70).

The fact that these post-pipes could not have formed until the posts of timber circle (F) had rotted clearly proves that the construction of this timber circle pre-dates that of the outer stone circle by what is likely to be a considerable period of time. Analysis of the contextual evidence by this review suggests that the final construction at Balfarg was the class I henge monument. Evidence to support this hypothesis comes in the form of the reality that the inner edge of the henge ditch was found to lie in very close proximity to the stones of the outer circle. Arguably had the henge ditch already been *in situ* prior to the placement of stones 1-3 in particular, then a more suitable location would have been selected to ensure that these stones did not run the risk of toppling into the ditch (see figure 22, area marked out in yellow).

5.5.5: Assessment of the Datable Evidence

The datable evidence (both absolute and relative) from Balfarg has proven insufficient (when subject to a critical reassessment by this study) to enable the formulation of an accurate chronological sequence for the constructed features at this site. This is largely a consequence of the reality that the four dated samples recovered during excavation all related to one structure (that of timber circle A) and of these four calculations three of them were recovered from the back-fill of one post-hole in particular (Mercer 1981, 81). The post-hole in question (A11) and the three determinations themselves were all samples of mixed charcoal, none of which seem likely to have derived from the actual timber, but appear more likely to have been residual material that was present within the old land surface that became incorporated into the post-hole as it was backfilled to secure the timber upright. As a consequence the determinations of (GU-1161) circa 2855-2466BC, (GU-1162) circa 3084-2669BC and (GU1163) circa 3264-2705BC provide at best a terminus post quem for the erection of timber circle A.

Similarly, the remaining radiocarbon date from this site (GU-1160) circa 2869-2621BC was also generated by the analysis of a mixed charcoal sample (Mercer

1981, 81). However in this instance the sample derived from the base of the back-filling of post-hole A7 of the main timber circle (Mercer 1981, 81). The variability in the age of these four determinations is surprising given the similar contexts from which they all derived. It therefore remains problematic to accurately date the construction of circle (A). In addition to the dated charcoal a large quantity of Grooved Ware (that derived from several separate vessels) was recovered from the fills of several post-holes associated with timber circle (A). This material largely places the erection of circle (A) within the period associated with this ceramic tradition (Mercer 1981, 90). The distinct lack of datable materials from the remaining timber circles, two stone circles or any context associated with the class I henge monument makes the creation of any form of chronology based upon datable materials impossible.

5.5.6: <u>Conclusion</u>

The significant degree of erosion that was noted during the excavations at Balfarg has without question hindered any attempt by this study to formulate an accurate chronological sequence for the constructed features at this site. Despite these limitations it has been possible to identify the likelihood that the initial construction consisted of a single ring of substantial posts (ring A), that encircled a portal or horse-shoe arrangement of posts (ring C). The primacy of these two structures over the remaining post circles is suggested on account of the fact that they do not appear to respect the entrance of ring (A) to the extent that they block it in all cases (see figure 22). Fortunately more reliable evidence was uncovered during excavation that was able to prove without question that the two stone circles post-dated all of the rings of timbers on account of the fact that stone-holes of the outer ring could be clearly seen to cut several post-pipes associated with the earlier timber circles.

The fact that the henge ditch had been the victim of a significant degree of erosion would normally have made the placement of this structure within the sites history problematic. However as the inner lip of the henge ditch was observed to cut elements of both the outer timber and stone circles it seems more than feasible to suggest that the class I structure was the last construction at this site. Unfortunately the radiocarbon evidence from Balfarg is extremely limited and can provide nothing more than a *terminus post quem* for the erection of timber circle (A). Only one ceramic form was recovered from this site (sherds of Grooved Ware from the post-holes of timber circle A) therefore without comparable evidence from any of the remaining structures the establishment of a chronological sequence cannot be established using this method either.

5.5.7: Verdict

TIMBER CIRCLE A & PORTAL ARRANGMENT (RING C) – TIMBER CIRCLES B, D, E & F – STONE CIRCLES 1&2 – CLASS I HENGE MONUMENT.

Case Study No 4: Broomend of Crichie.

5.6.1: Description

Small Class II henge monument that enclosed an arc of 6 stones and a series of cremations with an avenue of opposing standing stones aligned towards the northern entrance that linked this site to a larger recumbent stone circle. A timber circle is sited outside the southern henge entrance upon the same alignment of a second stone avenue.

5.6.2: Plan/Diagram

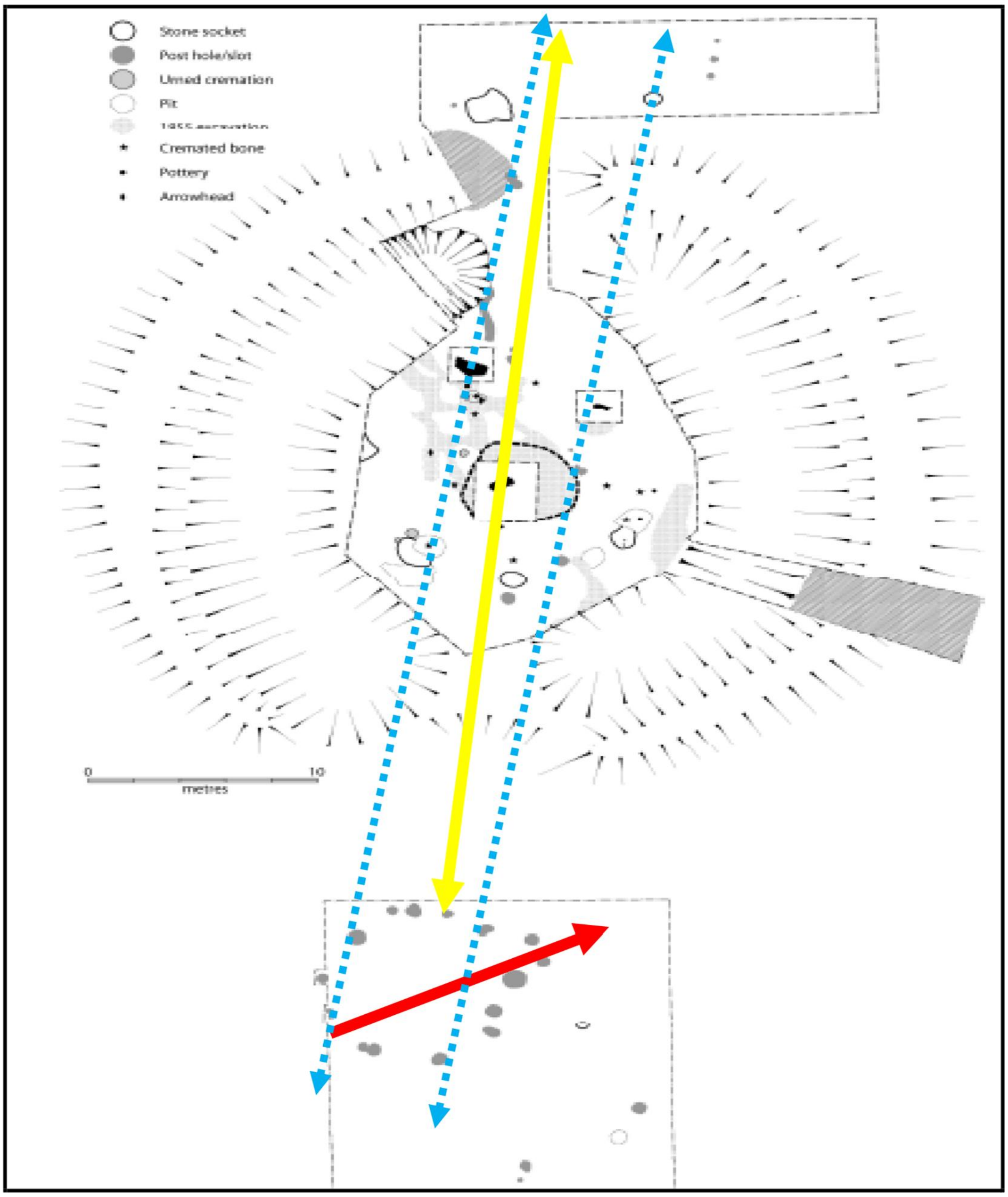


Figure 23. The misalignment of features at Broomend of Crichie. (After Bradley 2011, figure 1.35 with amendments). Red & Yellow arrows highlight the misalignment of the henge and timber circle entrances, while the Blue shows the cutting of the avenue by the henge.

5.6.3: <u>Dimensions & Orientations</u>

<u>Henge</u>: 37m external diameter, 16m internal diameter, ditch 5.5m wide, 2-3m deep.
Orientation: Opposing North-South entrances.
<u>Timber circle</u>: *Circa* 16 posts, circa 8-10m. **Orientation:** Entrance aligned towards the north-east.
<u>Stone Arc</u>: 11.6m in diameter consisting of 6 stones.

5.6.4: <u>Assessment of the Contextual Data</u>

Analysis of the contextual data relating to the site of Broomend of Crichie highlights that this site was subject to several phases of construction as the remains of a timber circle, stone arc, stone avenue and class II henge monument have been found to occupy this site (Bradley 2011). Contemporary excavations have suggested that the timber circle found outside the southern entrance of the henge monument post-dated the earthen bank and ditch or at best was contemporary with it (Bradley 2011, 40-43). This is due to the fact that the timber circle was thought to impinge upon the hypothetical extended line of the southern stone avenue that is known to pre-date the henge monument (see figure 23).

It is clear that the timber circle is indeed positioned within the henge monuments southern entrance and that it does indeed impinge upon the parameters of the stone avenue, however no stratigraphic interactions could be identified that proved the primacy of this avenue (and therefore as a consequence the henge) over the ring of timbers. Nevertheless this study is in agreement with the idea that the timber circle was the last structure to be built at Broomend of Crichie. However this study favours a hypothesis that separates these monuments into their individual elements rather than considering them as aspects of a composite site. This is due to the reality that the timber circle appears to have a porch arrangement situated in the north-east section. Arguably this would suggest that as opposed to being built to be aligned directly with the southern entrance of the henge the timber circle was constructed and aligned upon its own north-east – south-west alignment (see figure 23, red and yellow arrows). This would suggest that the timber circle was not merely added to this pre-existing monumental complex but rather it was a later addition that was actually built as an individual monument after the primary functions of the stone circle and henge monument had ceased. Such a theory is supported by evidence from throughout the study area that clearly demonstrates that with the exception of composite sites the construction of one monumental form in favour of another was interchangeable.

It has been suggested that the initial construction at Broomend of Crichie was a recumbent stone circle in the north that was connected to an arc of stones in the south by a series of paired upright monoliths that continued beyond this point to a cist cemetery (Bradley 2011). The primacy of the stone structures over the class II henge monument can be proven on account of the fact that the henge bank and ditch cut or impinge upon the line of the stone avenue at both the northern and southern entrances (see figure 23, alignments marked out in blue). It is therefore clear that the building of the henge monument changed the orientation of the site away from the avenues of monoliths and arc of stones to one that passed through the long axis of the henge between its two entrances (Bradley 2011). Arguably such architectural failings would surely have been avoided had the henge been the primary construction.

With these theories in mind this reassessment envisages a sequence for the site of Broomend of Crichie that sees the erection of a stone arc with accompanying avenues and recumbent stone circle being the primary construction. The small stone arc was then encircled by the class II henge monument that changed the alignment and probable function of the site to one that focused more upon funerary activity, based upon the number of cremations found associated with this later structure. At a later date a small timber circle was erected upon its own alignment within the environs of these two earlier structures that despite respecting these earlier monuments clearly changed the focus of this site once more.

5.6.5: <u>Assessment of the Datable Evidence</u>

Analysis of the datable evidence from Broomend of Crichie highlights that on the whole this data is largely open to interpretation. This is due to the fact that the majority of radiocarbon determinations (see site catalogue for details), derive from samples of carbonised hazel and heather found sealed beneath the henge bank. These samples were recovered from both the old land surface and the burnt soil which is believed to have been created as a result of vegetation being removed prior to the erection of the henge monument (Bradley 2011, 18-20). The latest date from this series of determinations and therefore the most accurate for the construction of the henge comes from (GU-15251) *circa* 1938-1749BC which provides a *terminus post quem* for the erection of the henge bank and excavation of the accompanying ditch (Bradley 2011, 60-61). The remaining useful determination

(GU-15256) *circa* 2292-2041BC derives from the top of one of the entrance post-holes that was situated by the northern entrance of the henge monument (Bradley 2011, 60-61). This determination while able to provide a *terminus ante quem* for the erection of the post, it is unable to date any of the other constructed elements at this site as the relationship that the post has with these features remains unclear. Analysis of the associated data suggests that the charcoal recovered from this feature is likely to be residual material that pre-dates this post by a considerable period of time.

It has been suggested that the two radiocarbon determinations from post-hole (2048) of the timber circle prove beyond doubt that this structure post-dates the construction of the henge monument (Bradley 2011, 40). This is due to the fact that a sample of beech charcoal (OxA18252) recovered from the bottom of that post-hole dates to the period *circa* 1878-1665BC and a sample of hazel charcoal from the weathering cone of the same post-hole **(**OxA-12851) *circa* 1684-1529BC are seemingly later than those dates associated with the construction of the henge (Bradley 2011, 60-61). On first inspection such a sequence appears acceptable, however it is the belief of this study that the provenance of these two samples of charcoal from post-hole (2048) is questionable on account of the fact that they appear to have been produced through the analysis of residual material that was unrelated to the initial act of erecting the post owing to the fact that these two samples were of different species. These samples appear likely to have washed into these contexts after the post had either rotted *in situ* or been deliberately removed. Even if this was not the case the dates associated with the henge are far from reliable as there is no evidence to suggest what period of time elapsed between the creation of the dated samples and the point at which the henge was created over the top of them.

5.6.6: <u>Conclusion</u>

Analysis of the contextual data clearly demonstrates that the primary construction at this site was the stone arc. The primacy of this structure is proven on account of the fact that the line of the two accompanying stone avenues is impeded by the henge bank and ditch in both the northern and southern sectors (see figure 23). It seems likely that the stone arc and associated avenue may have stood in isolation for a prolonged period of time owing to the fact that they were seemingly associated with a much grander stone ring situated to the north of this site. The henge was constructed after an uncertain period of time with its erection seemingly coinciding with the placement of a series of cremations around the site. The henge clearly altered the focus of this site away from the northern stone circle and avenues as its bank and ditch impinged upon both these features. The final construction was a timber circle that had an entrance porch in the north-east section and was clearly aligned along its own north-east – south-west axis (see figure 23). Unfortunately the datable evidence from this site is inconclusive as the determinations associated with the henge monument can only provide a loose *terminus post quem* for this structure and that the provenance of dates relating to the timber circle are open to interpretation.

5.6.7: <u>Verdict</u>

STONE ARC & AVENUES – CLASS II HENGE MONUMENT– TIMBER CIRCLE.

Case Study Nº 5: Cairnpapple Hill.

5.7.1: Description

A class II henge monument that enclosed an earlier stone oval of 24 stones and a later series of cairns and burials that were encircled by a small stone circle consisting of 10 stones.

5.7.2: Plan/Diagram

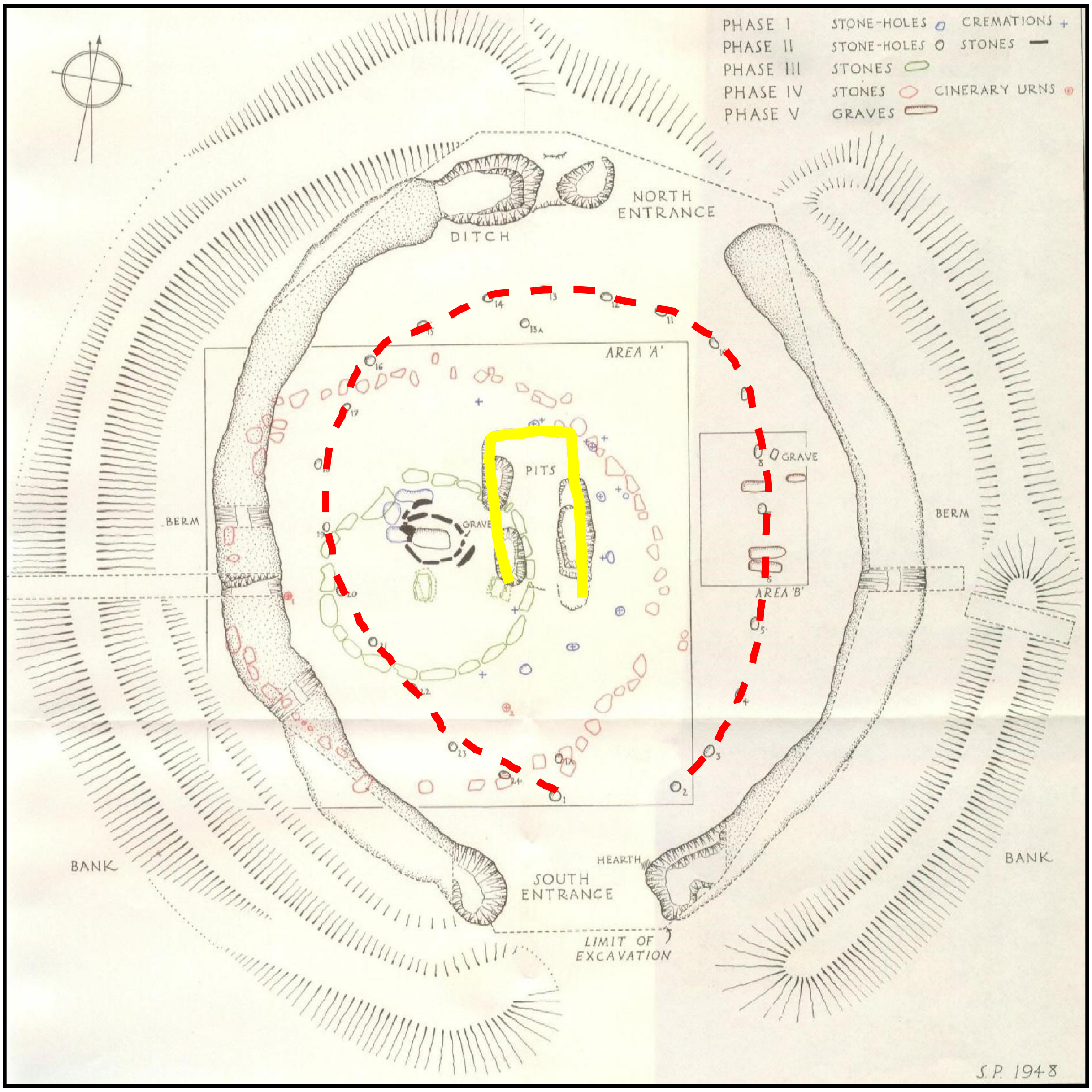


Figure 24. The internal phases of constructions at Cairnpapple Hill. (From Piggott 1950 with amendments). Plan shows the initial stone circle in red and the secondary stone cove associated with the class II henge monument.

5.7.3: Dimensions & Orientations

Stone circle: 24 stones. 31.5 – 27m in diameter. **Orientation:** Open towards the southsoutheast.
Henge: 38.1-44.2m in diameter, bank 5m wide, berm 3.6m wide, ditch 3.6m wide, 0.9-1.2m into rock surface. **Orientation:** Opposing entrances open towards the North-north east and south.

5.7.4: Assessment of the Contextual Data

The site of Cairnpapple Hill has been the subject of continued interest since its initial excavation by Piggott 1947-1948. Piggott believed that the stone oval, encircling class II henge monument and ceremonial burials were contemporary constructions (Piggott 1950). This interpretation of the data was more recently altered (Barclay 1999) to reflect the belief that the circle of pits was actually the remains of a ring of timbers as opposed to those of a stone circle. Nevertheless these two previously proposed sequences for the constructed features at Cairnpapple are rejected by this study in favour of a sequence that sees the egg shaped oval of stones pre-dating the construction of the class II henge monument. This is due to the fact that within the circumference of the stone oval there is a clear break between stone-holes 1 and 2 in the southern section (see figure 24).

While it is quite presumptuous to assume that this enlarged gap denotes the existence of an entrance into the centre of the stones it is reasonable to suggest that this break was not formed by an accident of coincidence or poor architectural planning. When the positioning of the break in the stones is compared to the alignment of the henge entrances it is clear that the stones block the northern henge entrance while the henge ditch impinges upon the entrance of the stone circle in the southern section (see figure 24). It has been suggested that the blocking of such features by the builders of these monuments was a deliberate act, aimed at restricting access into the centre of many sites (Gibson 2004). This would mean that the stone oval and class II henge were either contemporary constructions or that the earthen bank and ditch were later additions. The findings of this review deem it more feasible to suggest that this misalignment of entrances was a consequence of the class II henge monument being constructed around a pre-existing stone circle.

Further evidence to support this studies revised sequence comes in two forms. Firstly; it is clear that the stone oval does not fit well with the shape of the internal area formed by the henges ditch and bank. This is due to the reality that in the northern sections of the henge enclosure the uprights of the stone circle lay in close proximity to the inner lip of the henge ditch, while in the southern section the distance between these features is significantly increased (see figure 24). Secondly; it is apparent that the open end of the stone cove at Cairnpapple, unlike the stone oval, aligns exactly with the southern entrance of the henge. When this is considered in conjunction with the fact that the cove is also sited centrally within the centre of the henge it suggests the likelihood that this feature is contemporary with the henge monument.

If this was indeed the case then it seems reasonable to suggest that the stone oval was the primary construction at this site and was replaced, possibly after it had fallen into disrepair, by a class II henge monument that had a stone cove at its centre (see figure 24, areas marked out in red and yellow). These alterations ultimately moved the focus of this site away from a ceremonial centre to that of a burial ground. This change in function is proven by the fact that stone-holes 20 and

21 of the stone oval were found to be sealed under the initial cairn (which itself was encircled by a small stone circle) while stone-holes17-19 and 22-24 were found to lie under the secondary cairn (Piggott 1950, 83-92). The fact that the north grave was observed to have been cut by a later cairn during excavation, demonstrates that the focus of the site had indeed changed and that there was continued funerary use of the site over a prolonged period. Such evidence may enable the numerous cremations and hearths uncovered by Piggott to be more reliably placed towards the end of the monuments life cycle as opposed to being at the heart of its origins as was suggested initially by Piggott (Piggott 1950).

5.7.4: Assessment of the Datable Evidence

Analysis of the ceramics from Cairnpapple gives an insight into the development of this site. The initial activity consisted of sherds of Neolithic Plain Bowl Pottery being placed in a series of pits within the confines of the area that would be later enclosed by the henge monument (Piggott 1950, 76). It is unclear what duration of time elapsed between the cessation of this structured deposition and the construction of the primary monument at Cairnpapple Hill. Nevertheless what is clear is that the stone oval was constructed prior to the period in which the Beaker Ware ceramic tradition was flourishing as sherds of this pottery form were found to have been deposited within the upper fills of the stone-holes of the stone oval which had formed after the stones had been removed (Piggott 1950, 83-86). Such evidence proves that the stone circle had long since been abandoned when the henge ditch and bank were constructed as a shard of Beaker pottery was recovered from the primary fill of the henge ditch with no sherds of Beaker being recovered from beneath the henge bank (Piggott 1950, 81-83). The fact that the large graves and associated small stone circle had accompanying Beakers suggests that they post-date the construction of both the stone oval and the class II henge and were added to the centre of the henge after its initial use had ceased.

5.7.6: <u>Conclusion</u>

Any attempt to establish an accurate chronological sequence for the site of Cairnpapple Hill must firstly identify whether the oval of pits held either a series of timbers or a ring of stones. Analysis of these features by this study has enabled it to side conclusively in favour of these pits being the remains of a series of stoneholes. In establishing the appearance of this monument the findings this study were able to conclude that this stone oval pre-dated the construction of the class II henge monument on account of the reality that there was a misalignment between the entrances of these two monuments and as a result of the fact that the stone oval does not fit well within the shape of the internal area enclosed by the henges ditch and bank. This sequence is confirmed by the datable ceramics as they show that the stone-holes had silted up prior to the henge ditch being cut. The cove, remaining small stone circle and accompanying graves were latter additions to the site as the cove was sited centrally within the henge and elements of the graves were found to seal several earlier stone holes associated with the stone oval.

5.7.7: <u>Verdict</u>

STONE OVAL – HENGE & CENTRAL COVE – LATER BURIALS.

Case Study No 6: Croft Moraig.

5.8.1: Description

The appearance of this site was altered several times throughout its history. The Initial construction at this site consisted of a timber circle that had an entrance porch facing towards the south-east. This was replaced at a later date by a stone circle consisting of 9 stones and two outliers to the south-east that followed a similar but not exact alignment as the initial post circle. A shallow ditched enclosure possibly marking out the location of a cairn was then constructed directly over the location of the post circle that changed the alignment of the site. This new alignment was retained by the final construction at this site, which consisted of a stone oval and accompanying rubble bank.

5.8.2: Plan/Diagram

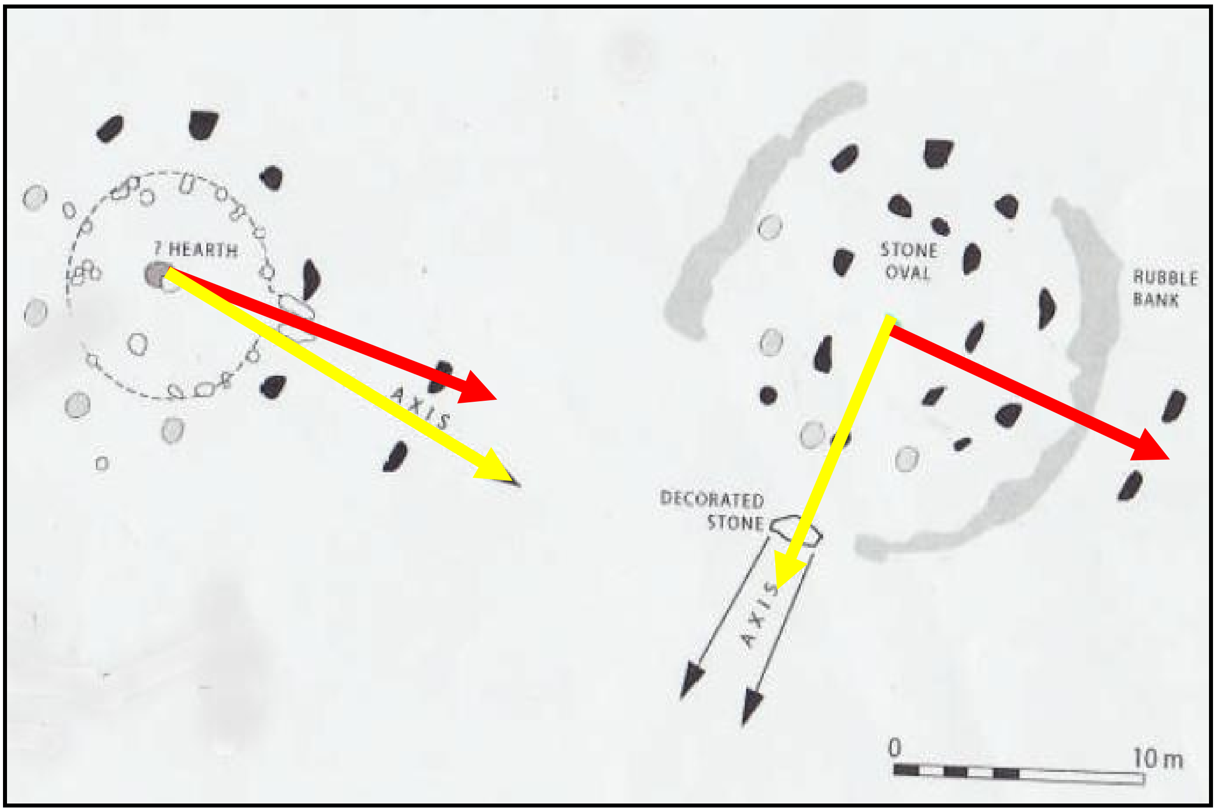


Figure 25. The suggested alternative sequence for Croft Moraig. (From Bradley & Sheridan 2005, with amendments). The plan to the left demonstrates the misalignment of the timber circle and first stone circle while the plan on the right shows the misalignment between the stone circle and later stone horse shoe.

5.8.3: Dimensions & Orientations

Timber circle; 14 posts 7.9m in diameter. **Orientation:** South-south-east.

Outer stone circle; 12 stones, 12m in diameter. **Orientation:** South-south-east.

Inner stone circle; 8 stones, 7.9 x 6.4m in diameter taking the form of a Breton horseshoe.

Orientation: South-south-west.

5.8.4: Assessment of the Contextual Data

The sequence of timber circle – stone oval –stone circle that was initially proposed by Piggott & Simpson for the site of Croft Moraig after their 1956 excavations became so widely accepted within archaeological literature and thought that it has often been promulgated (for the purposes of comparison and to provide legitimacy to unsubstantiated site chronologies) as being an archetypal example of a site that demonstrates the primacy of rings of timbers over those of stone at composite sites (Bradley & Sheridan 2005). Despite this widespread acceptance, a recent study has proposed an alternative sequence for this site that of stone circle-ring of posts (Bradley & Sheridan 2005). This theory was formed on account of the belief that these two structures were constructed upon the same alignment and axis. Support for such a sequence comes in the form of a recent radiocarbon dating programme that placed the 'flat rimmed ware' vessels that were found associated with the destruction of the timber circle to the Later Bronze Age (Sheridan 2003, A & B), as opposed to the Neolithic as initially proposed (Piggott & Simpson 1971).

However a review of the Croft Moraig data by this study questions the accuracy of the chronologies postulated by both these studies (Piggott & Simpson 1971) (Bradley & Sheridan 2005) and rejects them in favour of a ring of posts – stone circle with accompanying outliers – central cairn/mound and shallow ditch – stone oval sequence. This alternative series was formulated on account of the fact that for while the timber circle and stone circle do indeed appear to share a similar alignment and axis the primacy of the ring of posts can be demonstrated by the reality that the porch of the timber circle lies in very close proximity to stone 4 of the stone circle (see figure 25). This proximity was in spite of the fact that there was sufficient area between stones 4 and 7 of the stone circle in which to fit the timber porch comfortably. Arguably had the stone circle been *in-situ* prior to the construction of the ring of posts a more architecturally practical approach would have been adopted with regards to the layout of the timber porch. It would therefore seem more likely that the timber circle or 'hut' as it has been referred to was the primary construction at this site.

The timber circle was subsequently removed and after a short period of time (if not immediately) the stone circle with its accompanying outliers (that may have been constructed to reflect the porch arrangement of the original structure) was erected upon a similar but not exact alignment as the ring of posts (see figure 25). This theory is supported by the fact that a recent dating programme, that focused upon cremated bone, has highlighted that the ceramics associated with the destruction or 'levelling' of the timber circle actually date to the Later Bronze Age (Sheridan 2003, A & B), as opposed to the Neolithic as assumed by Piggott and Simpson during their 1956 excavation (Piggott & Simpson 1971). These ceramics were recovered from the shallow ditch which was associated with a possible cairn that was constructed directly over the site of the timber circle and within the circumference of the stone circle. The dating of the destruction of the timber circle to the Later Bronze Age, a period in which stone circles have a strong the currency, makes the idea of such a quick replacement theoretically feasible and would explain why the stone circle has a similar alignment to the earlier timber circle.

The construction of the mound/cairn and shallow ditch not only sealed the timber circle it also completely changed the axis of the site to one that focused upon a south-western alignment. This feature can be proven to post-date the stone circle on account of the fact that the ditch blocks the original alignment of the ring of stones (Bradley & Sheridan 2005). This new alignment was adopted by the later stone oval that was also erected within the central area of the stone circle directly over the central mound and earlier timber circle. The primacy of the stone circle over the stone oval that was placed within its boundary can be confirmed on account of the fact that the stone oval was encircled by a rubble bank which was on the same alignment and ran between the stone circle and its two outliers ultimately separating these two features from one another (Bradley & Sheridan 2005) (see figure 25).

5.8.5: <u>Assessment of the Datable Evidence</u>

During the1965 excavation 29 sherds of pottery were recovered from the fill of the penannular ditch. These sherds were attributed to the initial phase of construction and split into two groups). Group 1 comprised 26 sherds (representing a minimum of four ‘flat rimmed ware’ vessels) while Group II consisted of 3 sherds of Carinated bowl. Both groups were believed to be contemporary on account of their apparent stratigraphic associations and were assigned to the Early/Middle Neolithic ceramic traditions (Piggott & Simpson 1971). However contemporary radiocarbon analysis of datable samples that have been found to be associated with comparable ceramics as those from Croft Moraig from several other sites suggests that the Carinated bowls of group II date to the 4th millennium BC and as such are believed to be residual material related to an episode of activity at the site that has left no record (Bradley & Sheridan 2005).

Group I on the other hand although resembling sherds of Grooved Ware are now believed to date to the Late Bronze Age on account of the evidence generated by the recent cremated bone dating programmes (Sheridan 2003 A&B). This suggests that the Group I sherds are likely to post-date the Group II sherds by up to 3 millennia (Bradley & Sheridan 2005, 278279). These Group II ceramics which are associated with the cairn that sealed the timber circle provide a *terminus ante quem* for the ring of timbers and the stone circle both of which have been proven to pre-date this structure (See above. 5.7.4). These fragments of ceramic which date to the late 2nd or early 1st Millennium BC also provide a *terminus post quem* for the construction of the stone oval which can be proven to post date this cairn on account of the fact that it conforms to new alignment established by the cairn (Bradley & Sheridan 2005).

5.8.6: Conclusion

The chronological sequence proposed by this study for the constructed features at Croft Moraig clearly contradicts those that have previously been suggested (Piggott & Simpson 1971; Bradley & Sheridan 2005). However sufficient evidence that is capable of withstanding critical evaluation has been identified to substantiate the newly proposed sequence of timber circle – stone circle – cairn/mound – stone oval. There are clear anomalies within the contextual data (such as the proximity of the porch of the timber circle to the encircling stone circle and the realignment of the later cairn and subsequent stone oval) that clearly support the sequence proposed by this reassessment. The datable evidence from Croft Moraig is insufficient to enable the point in time at which each individual monumental element was constructed to be established *via* this method. This is a consequence of the fact that the datable ceramic evidence can at best only provide a *terminus ante quem* for the construction of the timber and stone circle and a *terminus post quem* for the cairn and horse shoe of stones respectively.

5.8.7: Verdict

TIMBER CIRCLE – STONE CIRCLE – CENTRAL CAIRN/MOUND & SHALLOW DITCH – STONE OVAL.

Case Study 7: Durrington Walls.

5.9.1: Description

Large Wessex henge whose ditch and bank are separated by a berm and broken by four entrances. Two duel phase timber circles (north and south) lay within the henge interior in addition to a series of Neolithic houses.

5.9.2: Plan/Diagram

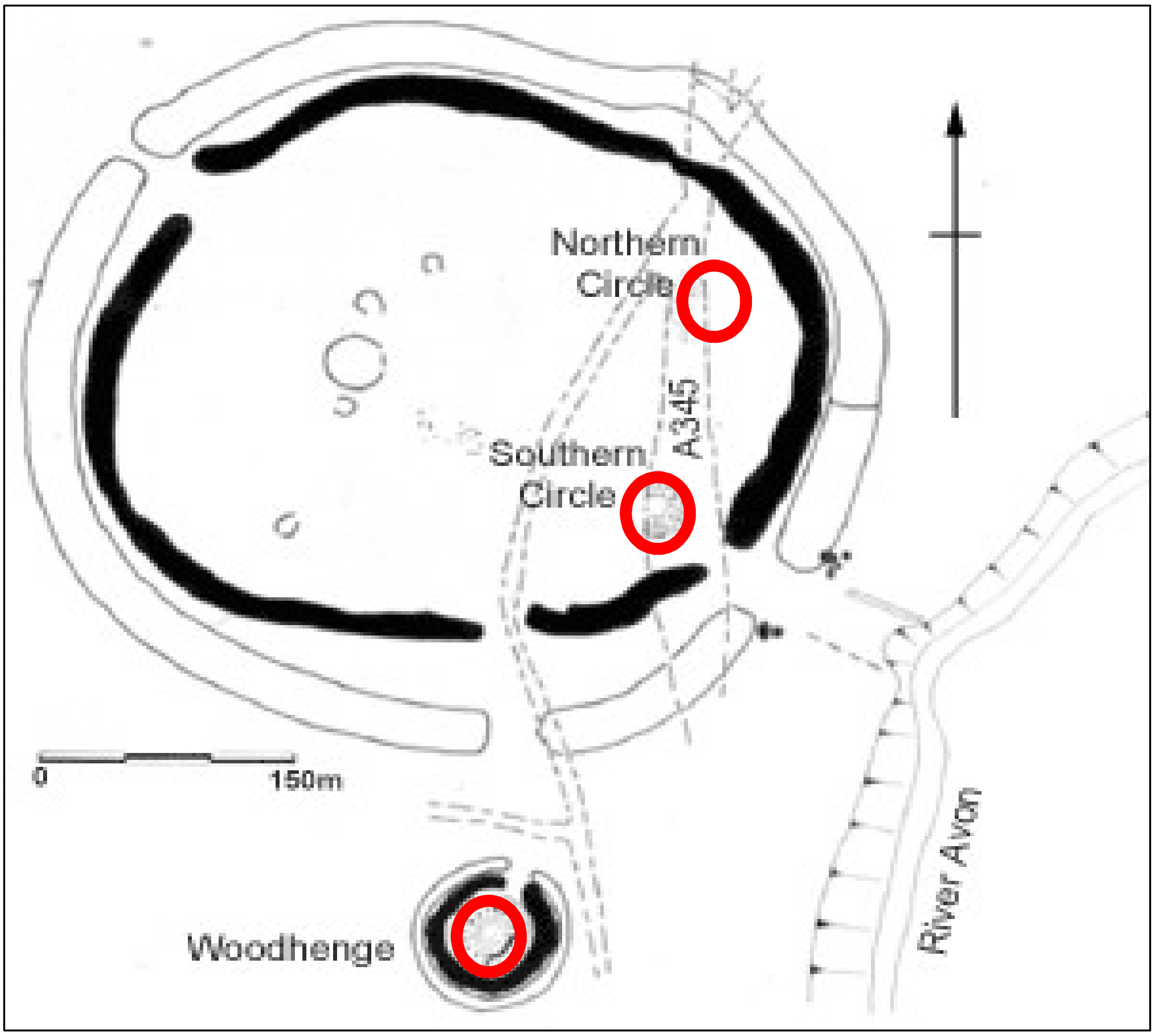


Figure 26. The constructed features at Durrington Walls. (From Wainwright & Longworth 1971 with amendments). The figure demonstrates how the great size of this monument limits the ability to identify stratigraphic relationships between constructed features and the concentration of timber monuments within the environs of Durrington Walls.

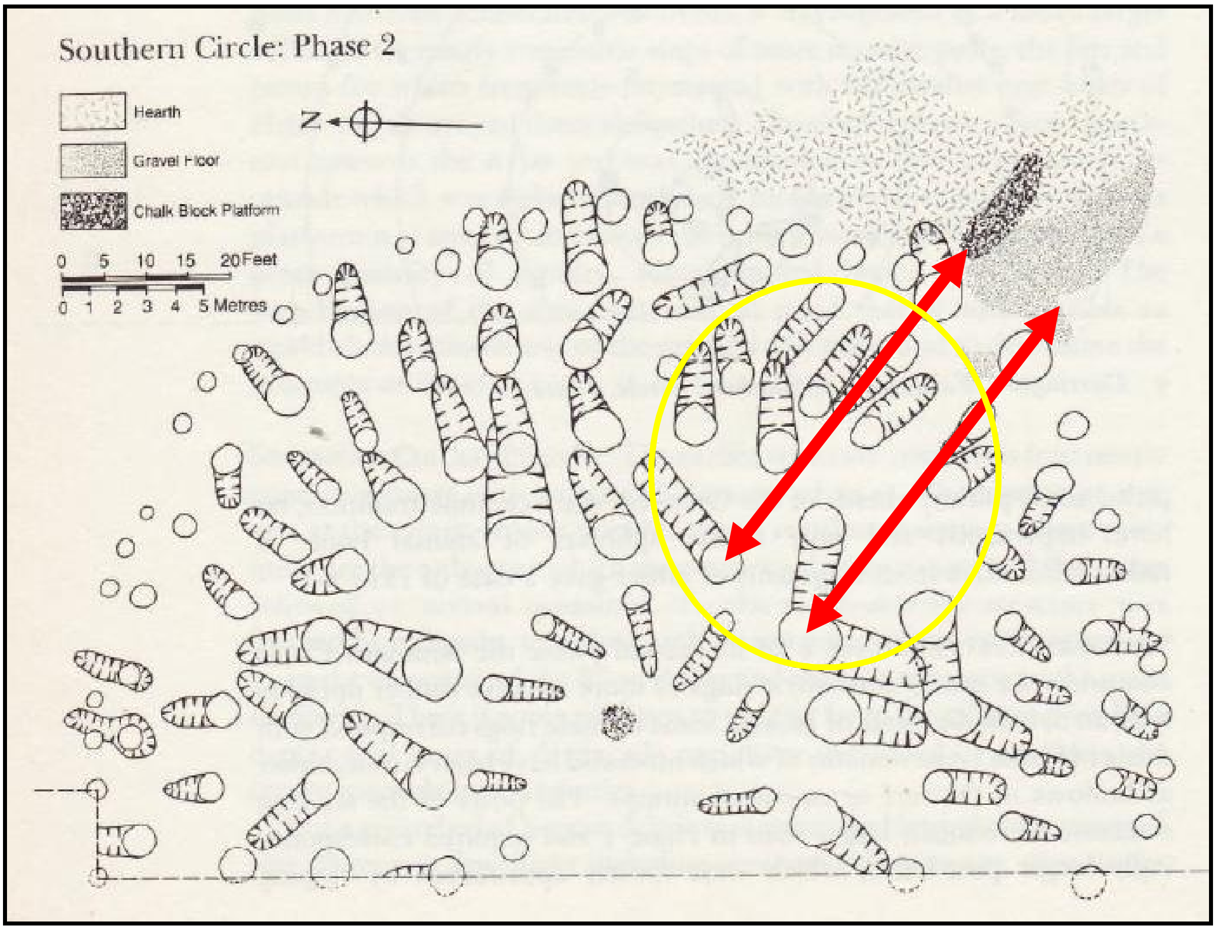


Figure 27. The replaced posts at Durrington Walls. (From Wainwright & Longworth 1971, with amendments). The figure shows how an entrance into the timber circles could have been achieved during the realignment of posts. The route itself is marked out in red while the suggested posts that were rearranged are marked in yellow.

5.9.3: <u>Dimensions & Orientations</u>

<u>Henge</u>; internal diameter, 321 – 387m, bank, *circa* 30m wide surviving to a height of 75cm, ditch, width 12.8m – 17.6m. East entrance 22.8m wide, West entrance 30.4m wide.
Orientation: South-East and North-West facing entrances.

<u>Timber circles</u>; South circle; situated 27m north-west of the east entrance; diameters, Phase I. Ring A – 30.04m, Ring B – 23.25m, Ring C – 14.75m, Ring D – 2.25m consisting of 6 posts. Phase II. Circle A – 38.9m, Circle B – 35.72m, Circle C 29.35m, Circle D – 22.9m, Circle E – 15.2m, Circle F – 10.75m. North Circle, situated 121m north of the southern circle: diameters, Phase I. Single ring 30m. Phase II. Outer Circle 14.4m consisting of 20 posts, Inner Circle 5m consisting of 4 posts. **Orientation;** South circle, entrance faced towards the south-east denoted by two large post-holes in the outer ring.

5.9.4: <u>Assessment of the Contextual Data</u>

During the 1966–1968 excavations at Durrington Walls by Wainwright three major structures were discovered. These consisted of the remains of a large super henge and two multi ringed and multiphased timber circles (North & South) (Wainwright & Longworth 1971). Due to the limited excavations no stratigraphic interactions between constructed features were initially identified (see figure 26). Therefore until recently it has remained impossible to determine the primacy of one structure over another through the analysis of the contextual data alone. However recent investigations undertaken as part of the Stonehenge Riverside project (Parker Pearson 2007) proved that the henge was later than the two timber circles. This is due to the fact that the henge bank was proven to have been heaped upon an historic ground surface upon which a number of Neolithic houses and an earlier avenue once stood (Parker Pearson 2007). Analysis of the avenues orientation and the layout of the Neolithic houses demonstrated that there was a clear relationship between these features and the multiphase southern timber circle. When this relationship was considered in conjunction with the reality that earth from the henge bank was observed to seal contexts associated with the avenue and houses it proves the likely primacy of not only the southern timber circle (Parker Pearson 2007), but also the northern timber circles.

Scrutiny of these data also highlighted the fact that the timber circles appear to have been the subject of at least two phases of construction prior to being encircled by the later henge (Wainwright 1989, 50-62). The southern timber circle initially consisted of four concentric rings of relatively slender timbers with a possible screen of timbers to the south-west that may have been constructed in order to mask the entrance into the centre of the circle of posts. The posts associated with this initial phase of the southern circle appear to have rotted *in situ* as opposed to being forcibly removed as there was no evidence of damage to the post-holes (Wainwright 1989, 50-62: Parker Pearson 2007). It is therefore reasonable to assume that the second phase of construction, which consisted of six concentric rings of more substantial timbers, may have post-dated the abandonment of the initial timber circle by a prolonged period of time.

Perhaps the best evidence to support this theory comes in the form of the fact that numerous examples of the later and larger post-holes associated with phase 2 and their accompanying post-ramps were observed to cut or completely destroy several examples relating to the phase I circle (Parker Pearson 2007). The clearest instance of this was noted at the point where post-hole (D77) of the phase II circle could be seen cutting posts (B161 & B162) of the phase I ring (Wainwright & Longworth 1971). Such evidence enables an accurate chronology for these structures to be established and also supports the theory that the initial ring of posts had rotted prior to the later circle being erected as there was no other damage to the primary postholes other than where they had been cut by the later additions. Examination of the evidence uncovered during Wainwright's excavation of the southern circle also highlights several anomalies with regards to the orientation of the post-ramps and the placement of some of the post-holes.

For example it is of note that the post-holes increase in depth and diameter towards the centre, with the innermost ring having deeply set but more slender posts. Further examination of this central setting highlights that the post-ramps associated with these pits all face inwards and towards the centre of the circle which suggests they were raised from centre of the circle outwards. This is in stark contrast to the majority of the surrounding posts. Arguably it would have been a far more practical pursuit to raise these timbers from the opposing direction as they would have had to be carried over a shorter distance and already *in situ* posts would be far less of a hindrance to the act of erecting the remaining timbers. Comparable evidence from other sites suggests that the central ring of the southern circle was a later addition to the site and was set after the surrounding rings had been erected into positioned (Wainwright & Longworth 1971).

The second anomaly that requires further discussion at the southern circle relates to the southeast sections of the outer rings. This is due to the fact that rather than following the pattern set out in the remaining sections the post ramps here alternate between being inside and then outside the posts (Wainwright 1989, 58). Unlike the evidence from the central circle this suggests that the posts in this area were replaced on several occasions or possibly that this area was subject to alteration to enable an entrance to be positioned within the outer ring. Such a theory can be substantiated through the analysis of the alignment of the post-holes which mark out a possible entrance into the centre of the monument in the south-south-east section. This entrance causeway is made up of a series of more substantial timbers and would have allowed access into the centre of the monument if the lesser timbers (many of which show signs of being realigned with ones that follow the path of this causeway) that block the centre of this causeway are removed from the plan (See Figure 27).

In comparison the remains of the northern circle were found during excavation to have been subjected to a great deal of erosion. Nonetheless it was still possible to determine that this circle also consisted of two main phases. The initial phase consisted of a single ring of timbers that measured 30m in diameter. This was subsequently replaced by two smaller circles, an outer circle measuring 14.4m in diameter consisting of 20 posts and an inner circle measuring 5m in diameter and consisting of 4 large posts. To the south of this circle a curved line of posts that possibly formed a façade and comprised of closely set posts with a central entrance gap and central avenue running up to it (Wainwright 1989, 60-62). While it is entirely possible that these post alignments were related to the northern circle it is impossible to accurately determine this relationship as a consequence of severe erosion and a distinct lack of stratigraphic interaction between the constructed features.

6.9.5: <u>Assessment of the Datable Evidence</u>

During the initial excavation of Durrington Walls a number of samples were recovered. These samples came from a variety of contexts associated with both the henge monument and the two timber circles including those from beneath the henge bank and the primary silts of the ditch. Such samples should have assisted in providing an accurate timeframe for the initial construction of the henge; however in this instance the variance between the most reliable dated samples was too great to provide a useful date range for this act. For example (Gro-901a) *circa* 3506-3098BC and (NPL-191) *circa* 3516-2633BC were both samples of charcoal that were found in association with sherds of Grooved Ware from the old land surface that was sealed underneath the henge bank.   When these determinations are compared to samples of charcoal (BM-398) *circa* 2836-2140BC and antler (BM-400) *circa* 2836-2140 from the base of the henge ditch it suggests that the henge bank and ditch was created at some point during the period *circa* 3500 - 2140BC. Examination of the remaining determinations that are associated with the henge at Durrington Walls are also unable to shorten the period in which the henge may have been constructed other than to say that it seems likely that this occurred *circa* the centuries *circa* 2500BC (see Appendix II).

It is of note that a single date from the second phase of the northern timber circle, fragment of antler pick (NPL-240) *circa* 2849-2037BC, is in statistical agreement with those determinations from the primary phases of the henge ditch. The analysed material from sample (NPL-240) was from a short lived sample and may have been used to excavate the post-hole from which it derived and as such can be considered reliable. Such evidence implies that if the second phase at the northern circle was largely contemporary with the excavation of the henge ditch, then the primary phase of this timber circle seems likely to have pre-dated this act. This data from the northern circle is in stark contrast to that relating to the southern ring of posts where samples of antler from five separate post-holes 133-4, 141, 193-4 place the construction of Phase I of the southern circle to the period *circa* 25781959BC (NPL-239). This date range suggests the possibility that the initial phase of the southern timber circle was constructed after that of the northern circle and possibly after the construction of the henge monument had begun. However it is important to note that this sample (NPL-239), although of short lived material was generated as a result of numerous fragments of antler from several post-holes being analysed, which may have affected the reliability of this sample.

When the samples recovered from posts associated with the second phase of the southern circle are taken into consideration it does indeed call into question the reliability of the sample from phase I as the date range for this structure support the theory that the initial building of timber circles pre-dated the construction of the henge monument. For example (BM-396) *circa* 2853-2151BM was a sample of antler from layer 8 of post-hole 92, (BM395) *circa* 2829-2056BM was a sample of oak charcoal from the base of post-hole 92, while (BM-397) *circa* 2568-2037BC was a sample of mixed animal bones that were obtained from layer 8 of the packing of post-hole 92 (Wainwright & Longworth 1971). It seems likely that the confusion and overlap between the determinations from the southern circle are as a consequence of the fact that residual material became incorporated into the back-filled postholes of the timbers associated with the second phase of construction as these were clearly demonstrated to cut those associated with the primary ring of posts.

Statistically the determinations from all phases of both timber circles are largely in agreement with one another. This would seem to suggest that timber circles were being built at this site for a prolonged period of time probably in excess of several centuries with one timber monument being replaced by a new structure as the posts of the older circles decayed. Such a theory is supported by the ceramic evidence as a large quantity of Grooved Ware was recovered from both Phase I & II of the Southern circle and both phases of the Northern timber circles which suggests that they were all built within the period associated with the use of this ceramic tradition (Parker Pearson 2007).

With regards to the ceramic evidence recovered from contexts associated with the henge Middle Neolithic Wares and fragments of Grooved Ware were recovered from beneath the henge bank and from the old land surface (Wainwright & Longworth 1971). This is in contrast to the fragments of Beaker that were recovered from the hearths in the upper fills of the henge ditch and Grooved Ware from the primary and secondary silts. Such evidence seemingly supports the radiocarbon data and associated theory discussed above for the construction of the henge; however there is a possible anomaly within the ceramic data. This comes in the form of a possible fragment of Beaker pottery that was recovered from beneath the henge bank by Farrer in 1917 (Farrer 1918). If this fragment was accurately identified it would place the construction of the henge within the transitional period between the ceramic traditions of Grooved Ware and Beaker pottery.

6.9.6: <u>Conclusion</u>

Analysis of the contextual data from Durrington Walls proves that the large henge monument was a later addition to the site. This was built around the two pre-existing multiphase timber circles; however it is unclear whether these or indeed the multiple Neolithic houses were still visible at this point in time or not. The two timber circles witnessed at least two phases of development as the post-holes and ramps relating to the initial phases were clearly cut by those associated with the later constructions (Wainwright 1989, 55-62). Fortunately the series of radiocarbon determinations from this site point to the likelihood that the henge monument was largely contemporary with the second phase of the northern timber circle, therefore it is clear that the first phase of this timber circle must have pre-dated it. The evidence from the southern circle is far more confused. It is belief of this study that the slight overlap in the dates for the phase I & II circle were as a consequence of residual material being incorporated into the secondary post-holes as they cut directly through those of the earlier circle.

The ceramic evidence suggests that all three structures were largely contemporary as sherds of Grooved Ware were recovered from the post-holes of both circles from both phases of construction in addition to being recovered from beneath the henge bank. The placement of the henge within this sequence may however be proven on account of the fact that a sherd of Beaker pottery was recovered from beneath the henge bank. Such evidence ultimately places the construction of the henge after that of both the timber circles. It may be the case that the large henge at Durrington Walls was constructed more as an enclosure for these earlier structures rather than merely as a monument in its own right. Such a theory is mere supposition; however the current excavations of Parker-Pearson have highlighted that the history of this site is far more complex than the mere building of two timber circles and an encircling earthwork therefore such a theory may not be as unconventional as initially perceived.

6.9.7: <u>Verdict</u>

CONTINUED CONSTRUCTION OF SEVERAL TIMBER CIRCLES - HENGE MONUMENT.

Case Study 8: Dyffryn Lane.

5.10.1: Description

Stone circle consisting of 7 large stones, that was later encircled by a class I henge monument and then subsequently covered by a small earthen mound.

5.10.2: Plan/Diagram

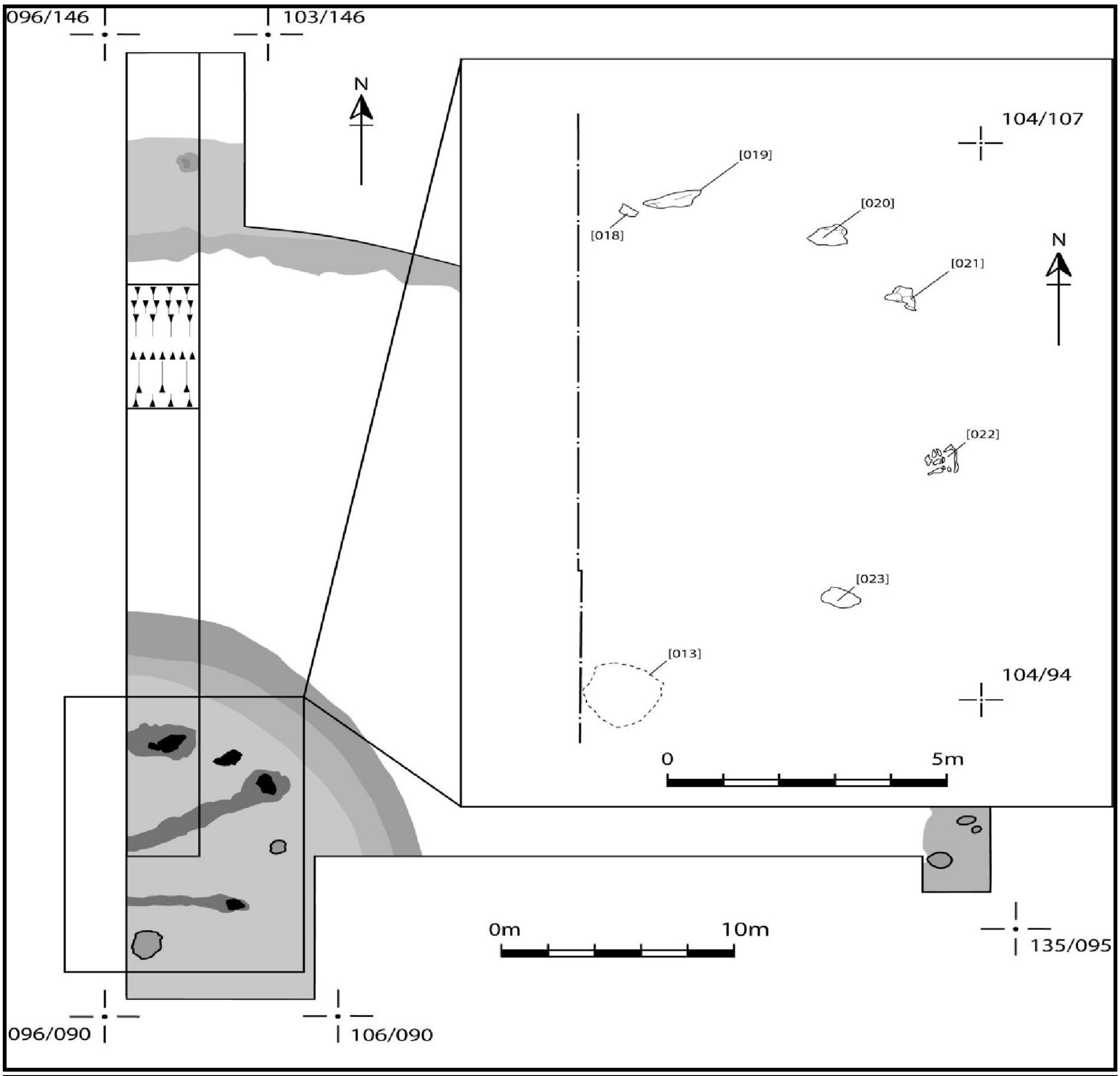


Figure 28. Plan of excavated features at Dyffryn Lane. (From Gibson 2010, figure 17). Figure clearly shows the stones protruding through the top of the central mound.

5.10.3: Dimensions & Orientations

Henge: Internal diameter, 64m, ditch 6.5m wide, 2.1m deep below current land surface, bank

0.3m high, 15m wide, berm 18m wide. **Orientation:** North-West facing entrance.
Stone circle: 11m in diameter, 7 stones 6 of which remain *in situ*. **Orientation:** No obvious orientation.
Central mound: Survived to a height *circa* 0.4m, with a diameter of 20m.

5.10.4: Assessment of the Contextual Data

The recent excavations at Dyffryn Lane (Gibson 2010) were unable to identify any direct stratigraphic interactions between the class I henge monument and the seven stones (six of which remained *in situ*) associated with the stone circle. This was a consequence of the fact that the ring of stones was separated from the henge monument by an internal berm measuring 18m in width (Gibson 2010). Analysis of the orientations of these two structures was also unable to provide any indication of the chronological primacy of either of these monuments. For while the entrance of the henge monument can clearly be observed to lie in the North-West of the bank and ditch circuit there is no increased or marked break between any two stones that might be regarded as denoting the existence of a deliberately planned entry point into the centre of the stone circle. Nevertheless despite the lack of any direct stratigraphic interactions between the stone circle and henge monument at Dyffryn Lane, in direct contextual evidence (that is open to interpretation) does exist that suggests that the stone circle pre-dated the construction of the class I henge monument.

Excavations highlighted that prior to the creation of the small mound that covered the stone circle the stone structure had fallen into disrepair, to the extent that soil and a layer of iron pan had accumulated over some of the fallen stones. It is unclear whether the later mound was made up of material generated by the initial excavation of the henge ditch (and is therefore contemporary with the henge) or whether this material came from elsewhere and was placed *in situ* over the stone circle after the henge ditch was excavated. Had this mound been formed of excavated earth from the henge ditch its position would clearly demonstrate that the stone circle pre-dated the construction of the henge. In addition it would also prove that at the point the henge ditch was being excavated the stone circle was no longer in use as the mound covered the stones, ultimately resulting in them being hidden from view (see figure 28). Arguably the use of the excavated material from the henge ditch would be a more economical undertaking than attempting to remove the seven large stones to a separate location or indeed than by bringing a significant quantity of earth to the site from an external location.

5.10.5: Assessment of the Datable Evidence

The excavation at Dyffryn Lane, like the investigation of most sites, was unable to identify direct dating evidence for both the stone circle and the class I henge monument. Nevertheless sufficient samples were recovered from secured contexts to enable chronological brackets for the site's development to be established. It is clear that the initial phase of activity at this site consisted of sherds of Peterborough Ware, carbonised hazelnuts and charcoal being placed in three small pits in the eastern section of the excavated area. A series of radiocarbon determinations of the hazelnut fragments from these pits; (Beta-231248R) *circa* 33513029BC, from pit 11, (Beta-231250R) *circa* 3018-2762BC from pit 36 and (Beta-231251R) *circa* 3349-3026BC from pit 38 highlight that this activity occurred during the centuries *circa* 3350 – 3000BC (Gibson 2010).

These dates are in statistical agreement with the currency of the sherds of Peterborough Ware recovered with the dated samples from these pits. The pits themselves were found to be sealed beneath the bank of the class I henge monument and therefore provide a *terminus post quem* for the construction of the henge. However, while these dates can be considered largely reliable on account of them deriving from short lived materials from secured contexts, samples relating to the firing of a hearth that occurred after this structured deposition within the three pits provide a more accurate *terminus post quem* for the construction of the henge monument.

For example (Beta-223792) *circa* 2836-2346BC & (Beta-231249) *circa* 2618-2347BC came from the analysis of samples of hazel twig charcoal from a hearth that was also found sealed beneath the bank of the henge. These dates provide an accurate *terminus post quem* for the construction of the henge monument at Dyffryn Lane to the period *circa* 2580-2460BC (Gibson 2010). The provenance of these samples and the fact that they are from short lived materials means that they can be considered largely reliable. In contrast to the ability to establish a *terminus post quem* for the construction of the henge it was also possible to determine *terminus ante quem* for the construction of the stone circle during the recent excavations. This is due to the fact that (as highlighted above) the stone circle was covered by an accumulation of soil.

This soil contained sufficient organic materials to enable radiocarbon analysis to take place. For example (Beta-223795) *circa* 2859-2469 BC hazel twig charcoal and (Beta-231837) *circa* 2833-2466BC hawthorn/rowan twig charcoal was recovered from soil overlying stones 18 & 19. These dates provide a *terminus ante quem* for the construction of the stone circle to *circa* the period 2630-2470BC when analysed in greater detail. It is clear that these layers continued to form over the abandoned and fallen stone until it was in a complete state of disrepair by the time a sample of birch charcoal became sealed within these deposits above stone-hole 20 (Beta-223794) *circa* 2465-2146BC (Gibson 2010). The establishment of a *terminus post quem* for the construction of the henge monument and a *terminus ante quem* for the erection of the ring of stones at Dyffryn Lane not only enables a reliable chronological sequence of stone circle - henge monument to be established for this site but also highlights that the henge was constructed around the stone circle within 200 years of the stone circle falling into disrepair.

5.10.6: <u>Conclusion</u>

Even though the stone circle and class I henge monument at Dyffryn Lane can only be dated by a *terminus ante quem* and *terminus post quem* respectively these data are sufficient to demonstrate the primacy of the ring of stones over the earthen bank and ditch (Gibson 2010). This is due to the fact that when radiocarbon analysis relating to materials recovered from a deposit of soil that covered stones 18 and 19, (Beta-223795) and (Beta-231837) *circa* 26302470BC is compared to data generated by the examination of remains of hazel charcoal from a hearth found sealed beneath the bank of the henge (Beta-223792 and (Beta-231249) *circa* 2580-2460BC it shows how the stone circle pre-dates the construction of the henge, even if it seems likely that this occurred within a period of 200 years. The contextual data does appear to support this theory on account of the fact that the final episode at Dyffryn Lane was the construction of a small mound that covered the area that housed the stone circle. It is unclear whether this mound was made up of material generated by the initial excavation of the henge ditch (and is therefore contemporary with it) or whether this material came from elsewhere and was placed *in situ* after the ditch was excavated. If indeed it can be proven that the mound material came from the henge ditch it would demonstrate without question the primacy of the stone circle over the henge monument.

5.10.7: Verdict

PRE HENGE ACTIVITY – STONE CIRCLE – CLASS I

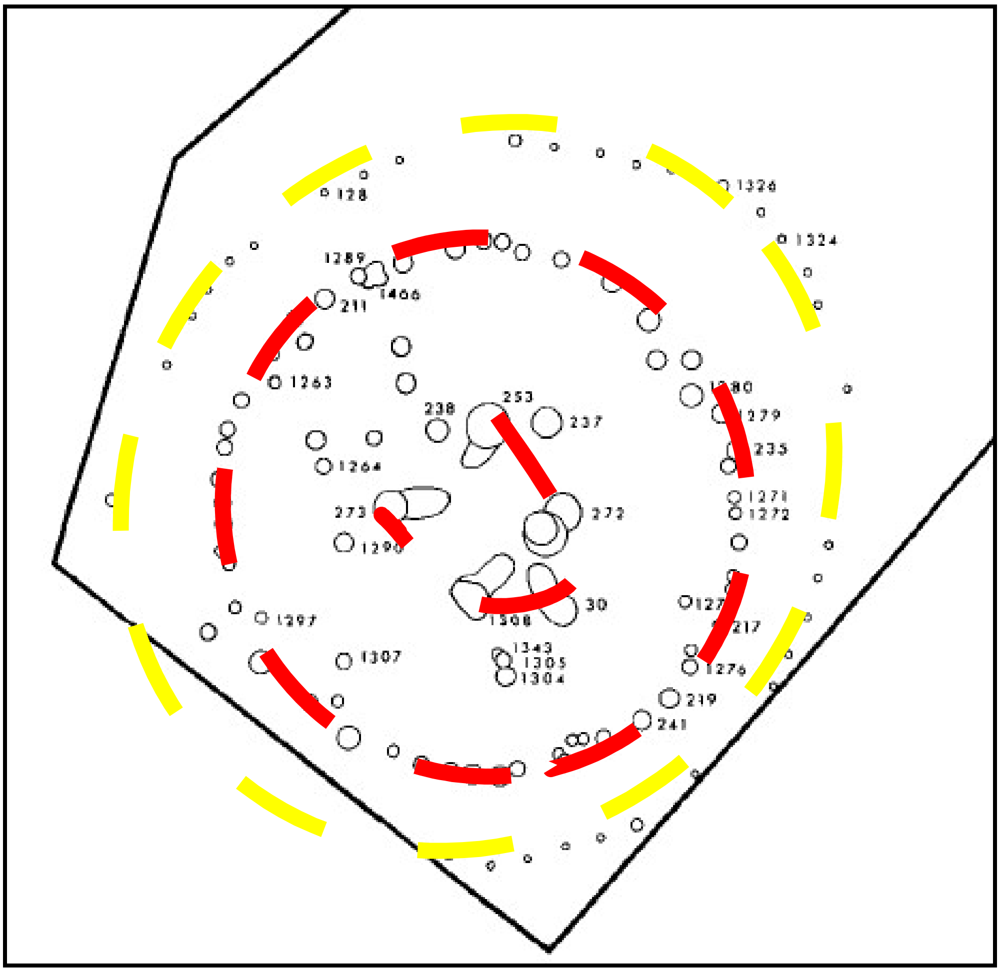
HENGE MONUMENT – CENTRAL MOUND.

Case study 9: Machrie Moor I.

5.11.1: Description

Stone circle consisting of 11 boulder type stones that was pre-dated by two earlier timber circles that consisted in the first instance of a ring of 53 timbers and enclosed central horse shoe setting of 5 substantial posts. This entire arrangement was later enclosed by a ring of slighter posts an event that coincided with elements of the earlier circle being replaced.

5.11.2: Plan/Diagram



Replication of Figure 3: The two phases at Machrie Moor I. (From Haggarty 1991, illustration 5 with amendments). Plan shows the two phases of construction proposed by this study for the timber circles at Machrie Moor I. The red lines denote the primary phase while the yellow line marks out the general alignment of secondary construction.

5.11.3: **Plan 2**

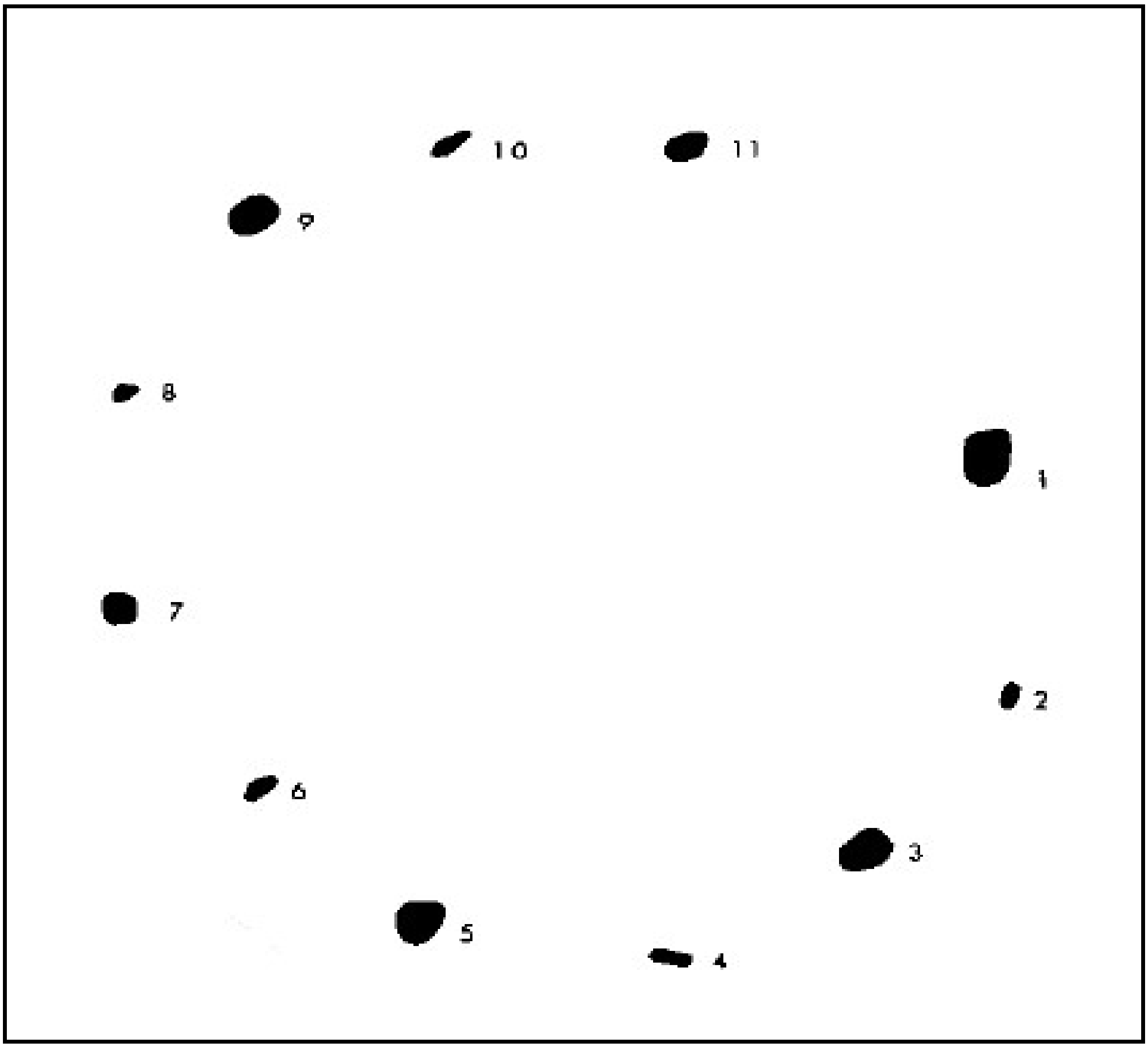


Figure 29. The stone circle at Machrie Moor I. (After Haggarty 1991, illustration 13).

5.11.4: Dimensions Timber circle Phase I; Main Ring; 53 posts 14.5m in diameter. Central horse shoe 5 posts 5.5m long, 3.5m wide. **Orientation:** Central horse shoe open towards north-west. **Timber circle II;** Outer ring; 34 posts, 19.5m in diameter. **Stone circle;** 11 stones, 14.4m in diameter.

5.11.5: Assessment of the Contextual Data

Analysis of the contextual data relating to the site of Machrie Moor I highlights the fact that this site was the subject of several phases of construction. It is the opinion of this study that the primary construction at this site consisted of the main ring of posts encircling a central horse shoe of large posts that was open towards the north-west. Evidence to support this theory derives from the reality that several of the posts associated with this inner circle appear to have been maintained over a period of time ultimately resulting in the removal and replacement of several posts (Haggarty 1991, 62-63). The repair of rotted posts was not observed within any context associated with the outer ring, which ultimately suggests that this outer circle was a later addition to the site. The arrangement of the outer ring (i.e. in a series of straight lines) suggests that this ring may have formed a screen to block views and/or access to the inner ring and central setting. This theory is supported by the location of the small setting of posts (that was found to be situated between the main ring and horseshoe arrangement) which appear to have formed a similar function to that of the outer circle by creating a screen between these two features (see figure 3).

It is clear that these two phases of timber circle construction were replaced by a single ring of 11 large stones that encircled the same area previously enclosed by the timbers (see figure 29). The primacy of the timber circles over the later stone circle can be proven on account of the reality that the packing of post-hole (F211), that formed part of the main ring of timbers, had been rearranged to form part of the foundation for stone-hole 9. This disturbance of the packing of post-hole (F211) by the construction of the stone circle could not have occurred unless the timber circle had been the primary construction at this site (Haggarty 1991, 72-73). It is equally as clear that the stone circle did not replace the two phases of timber circle construction immediately as a prolonged period of agriculture occurred between the abandonment of the timber circles and the placement of the 11 stones. This is due to the fact that a series of stake alignments and ardmarks were discovered to cross the site during excavation that cut features associated with the timber rings and were cut by features associated with the later stone circle. For example post-holes (F 1276) and (F 1297) associated with the main ring of timbers at site I were overlain by stake-holes belonging to the later stake-lines and several post-holes were found to be sealed below patches of ardmarks (Haggarty 1991, 67-71).

5.11.6: <u>Assessment of the Datable Evidence</u>

With regards to establishing an overall time frame and chronology for the development of the site of Machrie Moor I the radiocarbon data is largely insufficient to enable such parameters to be determined. This is due to the fact that many of the determinations derive from a series of bulk samples of mixed charcoal specimens or from samples that are likely to have been affected by the ‘old wood’ problem (see appendix II). When these facts are considered in conjunction with the reality that it is unclear whether any of these samples were directly related with the act they have been used to date these samples at best prove either a *terminus ante* or *terminus post quem* for the construction of the recognised features. For example all samples relating to this studies phase one timber circle all derive from the backfill material of the post-holes; (GU-2316) *circa* 3354-2943BC sample of mixed charcoal from post-hole (F1271), sample purely of oak charcoal recovered from post-hole (F1280) which gave a date of *circa* 2925-1962BC (GU-2325) and a small sample of hazel and oak charcoal from this studies phase two timber circle that was recovered from post-hole (F1326)and dated to *circa* 2894-2356BC (GU-2324) (Haggarty 1991, 60-64).

Due to the nature of these samples and the fact that they are statistically similar it is difficult to determine with any degree of certainty whether the inner ring of timbers was indeed replaced by the lesser timbers of the outer ring using this data alone. However the fact that sample (GU-2325) from the first phase and (GU-2324) from the second phase are statistically similar suggests that the observable renovations to the primary structure may have taken place around the same time that the outer ring of timbers was erected. The variety of materials recovered from the post-holes may be explained as a consequence of the reality that there was clearly a considerable amount of charcoal in the area prior to the construction of the first timber circle. This fact can be proven on account of the reality that a series of pits were uncovered that contained quantities of mixed charcoal (Haggarty 1991, 57-58). While the dated samples from these pits dated to a period significantly earlier than those samples associated with the timber circles it is feasible that materials from later pits became incorporated into the excavated post-holes associated with the timber circles. Like many sites there were no dated samples associated with the stone circle phase at Machrie Moor I. Thus the dating of this structure remains problematic.

5.11.7: Conclusion

Analysis of the contextual data for the site of Machrie Moor I by this study highlights that the uncovered post-holes represent not one but two phases of construction. The primary construction consisted of the main ring of timbers which enclosed a central horse shoe of large posts that was open towards the north-west. This primary ring was enclosed by a more irregular outer ring of slighter post which was erected probably while the inner ring was still *in situ*. This can be proven on account of the fact that several of the timbers associated with the inner ring were observed to have been replaced during excavation while such alterations could not be seen to have taken place within the outer ring (Haggarty 1991, 60-64). Consideration of the contextual data also clearly demonstrated the primacy of the dual phase timber monument over that of the stone circle at Machrie Moor I. This is due to the fact that the abandonment of the timber circle and the construction of the stone circle are separated by a prolonged period of agricultural activity (Haggarty 1991, 67). Features associated with the agricultural activity unquestionably cut or seal post-holes and ramps associated with the timber circle and are themselves cut or sealed by contexts associated with the later stone circle. Unfortunately the fact that the datable evidence recovered from this site is largely a collection of bulk samples from a variety of contexts makes the formulation of an accurate chronological sequence for the constructed features problematic. Nevertheless these dated samples do enable a currency for the constructed elements at this site to be established which fit well within the established parameters held in Appendix II for these monument types.

5.11.8: <u>Verdict</u>

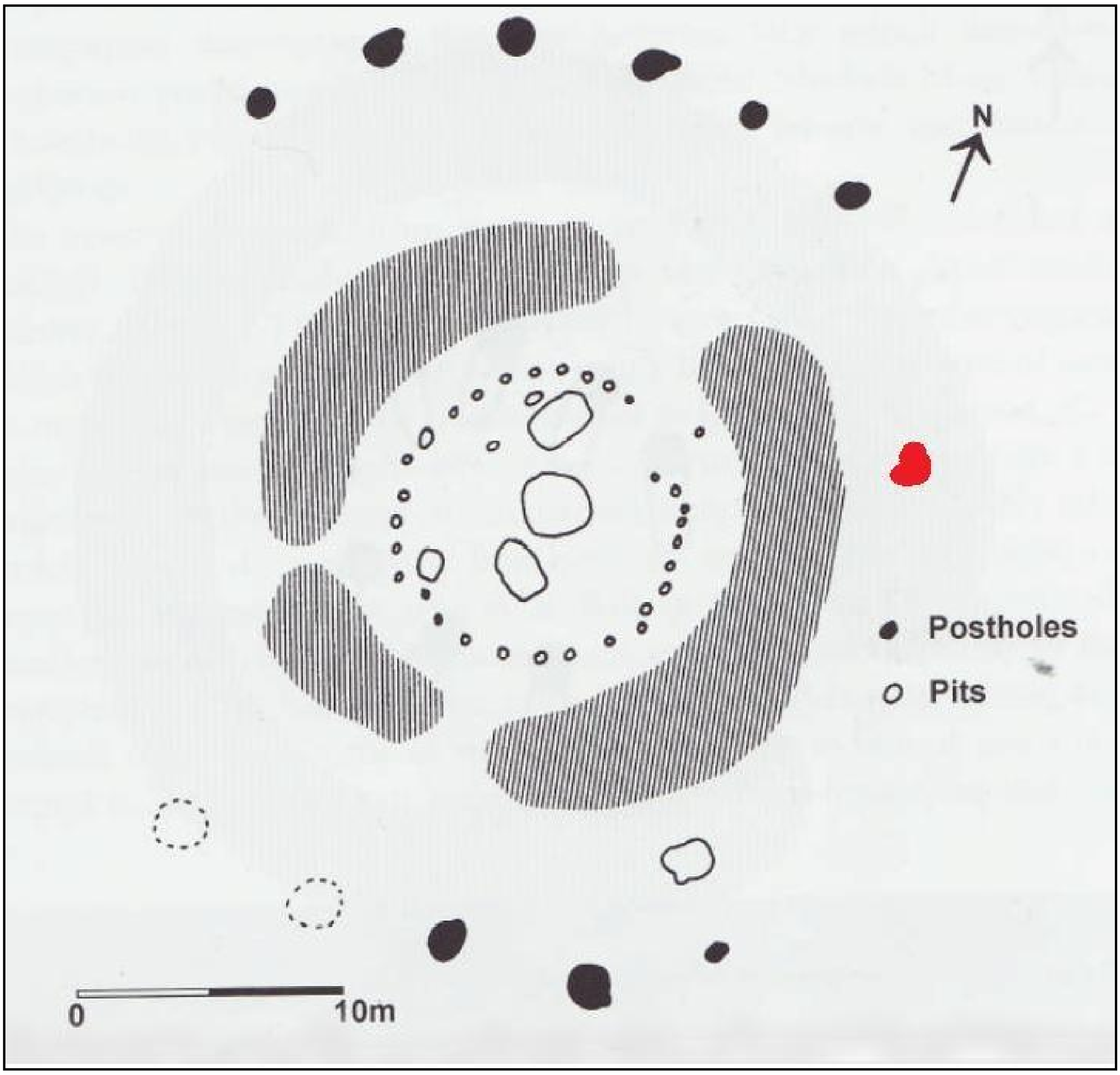
TIMBER CIRCLE I – TIMBER CIRCLE II – AGRICULTURE – STONE CIRCLE.

Case Study 10: Milfield North.

5.12.1: Description

Class II henge monument (that has an additional entrance causeway in the south-western sector) that encloses a series of 30 pits within its interior. The henge bank can be clearly seen to seal what is believed to be the remains of a timber circle that consisted of at least 13 posts.

5.12.2: Plan



Replication of Figure 8. **The Timber circle and class II Henge monument at Milfield North.** The plan demonstrates how the line of the timber circle would have run directly under the line of the henge bank in several areas. (From Harding 1981).

5.12.3: Dimensions & Orientations
Henge; 15m in diameter, Ditch 4-5m wide 1.20-1.30m deep **Orientation:** Opposing entrances to the North & South. Third break in the bank and ditch circuit South-South-West.
Timber circle; 38-50m in diameter consisting of at least 13 posts. **Orientation:** Unknown.

Pit circle; 30 pits, diameter 11m. **Orientation:** Break in ring of pits in North-North-East.

5.12.4: Assessment of the Contextual Data

Harding's 1975 & 1977 excavations at the site of Milfield North uncovered the remains of a Class II henge monument that enclosed a ring of 30 pits and (sealed beneath its bank) the remains of a timber circle (Harding 1981). Unlike most sites evidence was uncovered during these excavations that conclusively proved the primacy of the timber circle over that of the henge bank and ditch. This evidence comes from the post-pipe sited in the centre of shaft three of the timber circle as it is clear that this post-pipe had been overlain by a layer of redeposited material that had slid from the sides of the henge bank, possibly as a result of erosion or maybe as a consequence of slippage that occurred during the creation of the henge bank. This material from the bank could only have arrived in this position after the post (that was originally housed in shaft III) had been carefully removed or more likely had rotted *in situ*. Such evidence clearly demonstrates the primacy of the timber circle over that of the class II henge monument (Gibson 2005, 70-72).

Despite this evidence Harding suggested during post excavation that the posts of the timber circle may have still been *in situ* when the henge was constructed and envisaged a monument where the posts protruded into and above the henge bank (Harding 1981). This theory can however be rejected on account of the fact that in order for the posts to have achieved this it would mean that the posts would have had to have been around 3m long in order for them to have been of sufficient length to pierce the top of the henge bank. However pit III was only 0.90m deep, the currently accepted model for working out the height of a post based upon the depth of the post hole is 3-1 which would leave this post short by over 10% of the required height.

The location of the central ring of 30 pits and their concentric alignment with the henge ditch suggests that these were contemporary with or excavated after the henge monument had been constructed (see figure 8). The point at which the pits were added to the centre of the henge may also be alluded to by the fact that a gap, which lies between pit 1 and 30, seems to be aligned with the henge entrance. Nevertheless this relationship should be considered speculative at best as they are only partially aligned (see figure 8). The fact that these pits show no sign of containing any form of upright rules them out as being part of a timber structure that may have been constructed within the centre of the henge. The discovery of sherds of Beaker pottery from several of these pits may suggest that these pits had a funerary function; however this could not be proven during excavation (Harding 1981).

5.12.5: <u>Assessment of the Datable Evidence</u>

The excavations at Milfield North uncovered relatively little datable evidence from the timber circle and the class II henge monument. Nevertheless what was recovered can enable a basic timeframe for the construction of the monument to be established. The most useful radiocarbon determination from this site was (BM-

1150) *circa* 2462-2043BC which was an unspecified sample of charcoal recovered from the primary silts of the henge ditch by the South Entrance. It is clear from the samples location that this charcoal must have entered this position shortly after the henge ditch began to silt up. As such it provides a reliable *terminus ante quem* for the excavation of the ditch. However the true accuracy of this sample cannot be ascertained owing to the fact that it is unclear which species this sample originated from. A second unspecified sample of charcoal (BM-1149) *circa* 2336-2040BC was also recovered from the south entrance however this sample was recovered from the middle silts of the henge ditch (Harding 1981).

Owing to its location this second sample is clearly less reliable than the sample from the primary silts and can therefore realistically be disregarded as it can only suggest at what point in time the ditch had silted up to this level. Sample (HAR-1199) *circa* 2457-1953BC however is of more use as this sample derived from the fill of one of the pits enclosed by the henge. This sample was also of an unspecified species of charcoal, nevertheless it does highlight that these pits were unlikely to have been contemporary with the initial excavation of the henge and were more likely to have been added at the point in time at which the ditch had begun to silt up. This is due to the fact that the samples from the central pit and middle silts of the henge ditch are in statistical agreement with one another. This theory is supported by the reality that sherds of Neolithic type pottery and Beaker Wares were recovered from the lower fills of henge ditch while only Beaker and food vessels were recovered from the central pits (Harding 1981).

5.12.6: Conclusion

The primacy of the timber circle at Milfield North can be proven beyond doubt over the class II henge monument on account of the fact that the post-pipe sited in the centre of shaft three of the timber circle could clearly be seen, during excavation, to be overlain by a layer of redeposited material that had slid from the sides of the henge bank. This material from the bank could only have arrived in this position after the post (that was originally housed in shaft III) had been carefully removed or more likely had rotted *in situ*, thus proving the primacy of the timber circle over that of the henge monument. Evidence that highlights the point at which the ring of 30 pits was excavated is less evident. However the fact that a gap, which lies between pit 1 and 30, seems to be aligned with the henge entrance may suggest that the pits were a later addition to the centre of the henge. Nevertheless this relationship should be considered speculative at best as they are only partially aligned (see figure 8). It is more likely that these pits were added to the centre of the henge after it had been in existence for some time. This is due to the fact that the radiocarbon determination from the secondary fills of the henge ditch and the determination from one of the central pits are largely in statistical agreement with one another.

5.12.7: Verdict

TIMBER CIRCLE – CLASS II HENGE – INTERNAL RING OF PITS.

Case Study 11: North Mains.

5.13.1: Description

Class II henge monument that enclosed two earlier timber circles; (Circle B) consisted of 18 posts and (Circle A) consisted of 24 posts with accompanying post-ramps. Numerous burials were recovered from within the boundaries of the henge monument.

5.13.2: Plan/Diagram

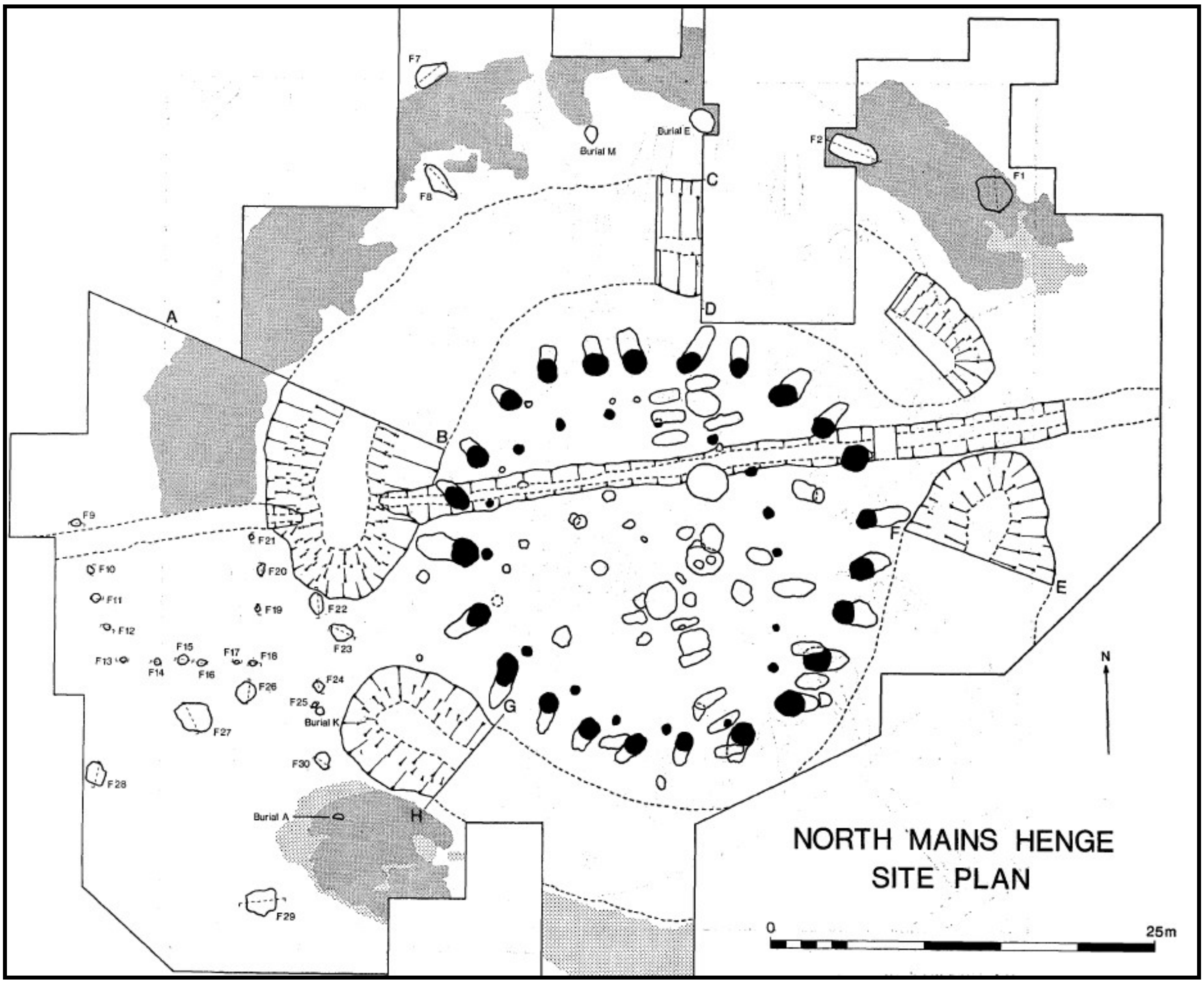


Figure 30. Plan of the North Mains henge and timber circles. (From Barclay 1983, figure 3). The figure clearly demonstrates the misalignment between timber circles A & B and the proximity of the henge ditch to the post-ramps of ring A.

5.13.3: Dimensions & Orientations

Henge; Internal diameter 32-35m, ditch 6-11m wide, depth 3m below modern ground surface. **Orientation:** Opposing east-west entrances.

Timber circle A; 27m in diameter consisting of 24 posts. Post-hole depth between 1.35 and 2.05m in depth.

Timber circle B; 22.5m diameter consisting of 18 posts. Post-hole depth between 0.25 and 0.55m in depth (damaged as a consequence of erosion).

5.13.4: Assessment of the Contextual Data

Barclay's 1978-1979 excavations at North Mains uncovered the remains of a class II henge monument that enclosed two rings of timbers (one made up of 18 slight posts (B) and one of 24 more substantial posts that had accompanying post-ramps and a series of burials (Barclay 1983). Initially, Barclay suggested that timber circle (A) and the class II henge monument were contemporary constructions and that timber circle (B) post-dated both these structures. However a reassessment of the contextual data from North Mains (Gibson 1998, 36-37) suggested an alternative hypothesis that consisted of timber circle (B) pre-dating timber circle (A) that in turn was then enclosed by the class II henge monument at a later date. Analysis of the contextual data by this study could not find any evidence to contradict this sequence. This is due to the fact that all the post ramps associated with timber circle (A) lie on the outside of the ring of timbers. This would suggest that the timbers were erected from this direction (i.e. from the outside inwards). However the proximity of the post-holes and post-ramps to the henge ditch would have meant that had the henge already been *in situ* then the builders of timber circle (A) would have had the stand in the henge ditch while erecting the posts (Gibson 2005, 44-46).

The primacy of timber circle (A) over the class II henge monument can also be confirmed by the fact that several post-holes (and therefore the posts they once held) clearly would have hindered access through the entrances of the henge. This is due to the fact that post-holes A11, 12 & 13 can be seen to block the north-east entrance while post-holes A1, A23 & 24 seemingly obstruct the south-west entrance. Nevertheless analysis of the contextual data also highlights the fact that timber circle (A) seems unlikely to have been the primary construction at North Mains. This is due to the fact that when the alignments of the two timber structures are analysed ring (B) can be clearly observed to be positioned off centre within the larger circle (A) to the extent that in the south-west sections the posts of both circles lie in very close proximity to one another (see figure 30). The lack of circularity between these two structures suggests that timber circle (A) was a replacement for the smaller circle that was built on a larger scale with more substantial posts and encircled the area originally occupied by circle (B) (Gibson 2005, 46). The findings of the reassessment of the contextual data by this study are in complete agreement with those of Gibson's initial (1998) and republished reassessment (2005) of the North Mains data and accept the proposed chronological sequence of development for this site, that of Timber circle B – Timber circle A – Class II Henge.

5.13.5: Assessment of the Datable Evidence

Initially the radiocarbon data recovered from North Mains was insufficient to enable an accurate chronology for the constructed features to be established (Barclay 2005). This was due to the fact that the majority of recovered datable materials were from features associated with timber circle (A). These dates could at best provide only a loose chronological bracket for the currency of the timber circle on account of them deriving from post-pipes like (GU-1435) *circa* 2861-2343BC, (GU-1436) *circa* 28842501BC and (GU-1352) *circa* 3089-2675BC which were two samples of mixed charcoal and a fragment of a charred plank respectively. The remaining dates (GU-1354) *circa* 28732351BC and (GU-1353) *circa* 2877-2494BC were of oak charcoal from the primary packing of post-hole, which although able to provide a *terminus post quem* for the construction of timber circle (A) were equally unable to assist in the formulation of a chronological sequence for the timber circle and henge monument (Barclay 1983).

However a more recent dating program of cremated bone (that was previously too small to be subjected to be radiocarbon analysis) enabled materials that could provide a reliable *terminus post quem* for the construction of the class II henge monument to be dated. During excavation a burial (burial A) was found sealed beneath the henge bank, when a sample of bone from this burial was subjected to analysis it produced a date of *circa* 2196-1920BC (GrA-24007) (Sheridan 2002). When this date, which can only have predated the construction of the henge, is compared to (GU-1354), which as highlighted came from oak charcoal recovered from the primary fill of posthole (A5) and produced a date of *circa* 29002200BC it demonstrates that timber circle (A) did indeed predate the construction of the henge monument, possibly by as much as several centuries (Barclay 2005). Even when the old wood effect is taken into consideration with regards to the date associated with timber circle it suggests that this circle stood in isolation for a considerable period of time before being encircled by the later henge.

5.13.6: <u>Conclusion</u>

This study supports the chronological sequence suggested by Gibson's reassessment (Gibson 1998, 36-37). It is undeniable that timber circle (B) shows no discernible alignment with the much larger ring of timbers (circle A). When considered in conjunction with the fact that the timbers of these two circles were observed to be in very close proximity to one another in the south-west sector during excavation it does indeed suggests that the larger circle (A) was constructed around the area of a pre-existing circle (B) which had presumably already fallen into disrepair (Barclay 2005). The primacy of timber ring (A) can also be proven by several other strands of evidence. Firstly, the post ramps associated with timber circle (A) are in such close proximity to the henge ditch the builders of the timber circle would have had to stand on the inner slope of the ditch to erect the posts had the henge already been *in situ* (Gibson 2000, 54-55).

Secondly, the orientation of ring (A) and the henge monument are not complementary as the post-ramps are in such close proximity to the henge ditch that the ditch virtually cuts them in some areas in addition to both entrances of the henge being blocked by elements of the timber circle (Barclay 1983). Thirdly; and unquestionably the most compelling piece of evidence comes from a sample of human bone (GrA-24007) *circa* 2196-1920BC from burial (A) that was found sealed beneath the henge bank. For when this date (from a sample that can only have predated the construction of the henge), is compared to (GU-1354) *circa* 2900-2200BC, which was a sample of oak charcoal recovered from the primary fill of posthole (A5) of timber circle (A) it confirms beyond reasonable doubt the primacy of the ring of posts over the henge monument by possibly as much as several centuries (Sheridan 2002; Barclay 2005).

5.13.7: <u>Verdict:</u>

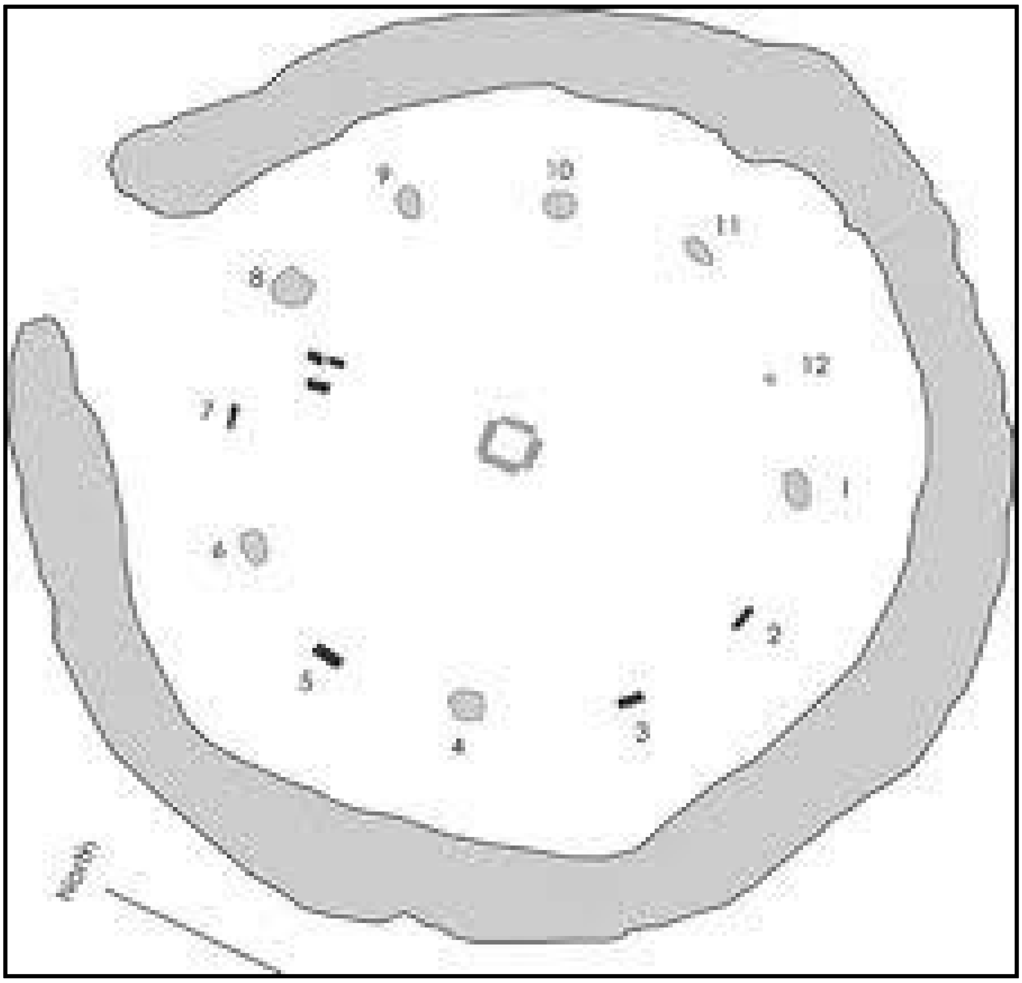
TIMBER CIRCLE B – TIMBER CIRCLE A – BURIAL A – CLASS II HENGE MONUMENT – LATER BURIALS.

Case Study 12: The Stones of Stenness.

5.14.1: Description

Class I henge that enclosed a circle of 12 large stone uprights. In the centre of the stone circle is a square setting of 4 stone blocks that surrounded a possible timber upright. In addition the henge encloses a series of pits, a possible four-post structure and a three stone cove.

5.14.2: Plan/Diagram



Reproduction of Figure 16: The Stones of Stenness. Plan shows the proximity of the large stones to the inner lip of the encircling henge ditch. (From Ritchie 2001).

5.14.3: Dimensions & Orientations

Henge; Internal diameter 44- 46m, ditch 2.3m deep and 3.5 – 4m wide. Bank, 6.5m wide, surviving to a height of 0.4m high, Causeway 8m wide. **Orientation:** North facing entrance.

Stone circle; 30m diameter. Square central setting enclosing an area of 2.1 –1.9m.

Orientation: None observable.

Central Stone Setting; 4 stones**. Orientation:** Square, non-observable.

5.14.4: Assessment of the Contextual Data

The formulation of a reliable sequence for the site of Stenness has proven difficult to establish. This is due to the reality that there are no observable stratigraphic interactions between any of the constructed features. Nevertheless analysis of the contextual data highlights that the tip of the henge ditch at its west terminal was observed to be very narrow in comparison to its counterpart. Such evidence may suggest that the ring of stones was added to the centre of a pre-existing henge whose circumference had been recut to enable these stones to be placed within its boundaries. The act of placing these large stones within such close proximity to the inner lip of the henge, while ensuring that they did not topple into the ditch, would have unquestionably been a difficult task. It has been suggested that it would seem more likely that the stone circle pre-dates the construction of the henge monument as the erection of the stones would have been a much easier task had the henge ditch not already been excavated prior to the stones being placed *in situ* (Ritchie 1976).

It would therefore be feasible to envisage a scenario where the boundaries of the class I henge monument were marked out from the outer edge of the stone circle after the ring of stones had already been erected. Such a sequence would have made the construction of the ring of stones a far easier task as they could have been erected from the outside inwards as opposed to all the stones being brought through the entrance then distributed around the inner lip of the henge ditch. The primacy of the stone circle would mean that a high degree of architectural planning would have been required to ensure that the henge ditch could have been excavated to a sufficient depth and width while ensuring that the initial up cast material was placed in a suitable position to ensure that it did not impinge upon the expanding ditch. While problematic it would not have been insurmountable to achieve and as such it does indeed seem feasible that the stone circle was the primary construction. It is less clear which of these phases the central stone cove belongs too. The fact that this is a stone monument does not necessarily mean that it was in anyway related to the outer stone circle. As a consequence this study envisages a scenario where this and the remaining central structures were a much later addition to this site possibly carrying out a function that was completely unrelated to the initial purpose of the site.

5.14.5: <u>Assessment of the Datable Evidence</u>

The radiocarbon evidence mainly derives from the silts of the henge ditch. These dated samples are of short lived materials from secure contexts and are largely in statistical agreement with one another. This suggests that after its initial excavation the henge ditch silted up quickly or that materials began to erode from the sides of the newly formed ditch (that were present within the old land surface) shortly after it was excavated. For example (SRR-350) *circa* 3265-2679BC animal bone from the base of the henge ditch, (OxA-9762) *circa* 3314-2491BC wolf bone from the primary silts, (OxA-9763) *circa* 3335-2916BC cattle hoof core from secondary fill, (OxA9764) *circa* 3325-2901BC cattle radius, (OxA-9765) *circa* 3330-2907BC cattle mandible and (OxA-9904) *circa* 3091-2900BC, from upper silts of henge ditch (Ritchie 2001: Sheridan 2006). Such data supports the theory proposed above that suggests that the features of the henge were marked out from the edge of the stone circle. This is due to the fact that a high degree of architectural planning would have been require to enable the up cast material to be placed at a sufficient distance from the outer edge of ditch to stop it impinging upon the width of the freshly cut ditch. Arguably the rapid silting of the ditch was caused by the excavated material slipping back into the ditch. This could also explain why the tip of the henge ditch at its west terminal was observed to be very narrow as it could be the case that this area was altered to restrict this rapid slippage around the henge entrance.

The datable evidence highlights the point at which the central stone setting was sited within the stone and earthen circles. Analysis of samples of animal bone (SRR-350) *circa* 3265-2679BC and wolf bone (OxA-9762) *circa* 3314-2491BC from the primary silt of henge ditch pre-date by several centuries a sample of cremated bone (SRR-351) *circa* 2910-2578BC from the central stone setting (Ritchie 2001: Sheridan 2006). This suggests that the class I henge monument had been in existence for a prolonged period of time prior to the stone setting being erected within its centre. Such a theory is supported by the reality that sherds of Grooved Ware were recovered from the top of the primary silting layers of the henge ditch and the central stone setting. This alludes to the likelihood that the central setting was placed at the point in time that the henge ditch had silted to this level. Unfortunately there were no datable materials recovered from the stone-holes or any other context associated with the main ring of stones at this site. Therefore it remained impossible to determine the stone circles true place within the sequence of construction at this site.

5.14.6: Conclusion

The evidence is sufficient to enable the suggestion that at the Stones of Stenness the stone circle pre-dated both the encircling class I henge monument and the central stone setting. For while there are no stratigraphic interactions between the constructed features at this site, sufficient anomalies exist both within the contextual data and datable evidence to support this theory. The idea that the stone circle was the primary construction is not only supported by the fact that the large stones are in very close proximity to the inner lip of the henge ditch but also by the reality that the ditch silted up quickly as a consequence of the up cast material falling back into the ditch after it had not been placed at sufficient distance from its outer lip. This may not have occurred so rapidly had the stone circle not already been *in situ* as the ditch and bank may have been constructed to adhere to a more architecturally sound design. The datable evidence, although satisfactory from some contexts (such as the henge ditch) is limited from others. Nevertheless it has proven sufficient with regards to its ability to accurately show that the ditch of the henge monument had silted up significantly prior to the central stone setting being erected.

5.14.7: Verdict

STONE CIRCLE – HENGE MONUMENT – CENTRAL STONE SETTING.

Case Study Nº 13: Strichen.

5.15.1: Description

Recumbent stone circle consisting of 14 stones that had monoliths set in a rubble bank and enclosed two stone lined graves. Within the stone circle were the remains of an earlier timber circle and a later roundhouse.

5.15.2: Plan/Diagram

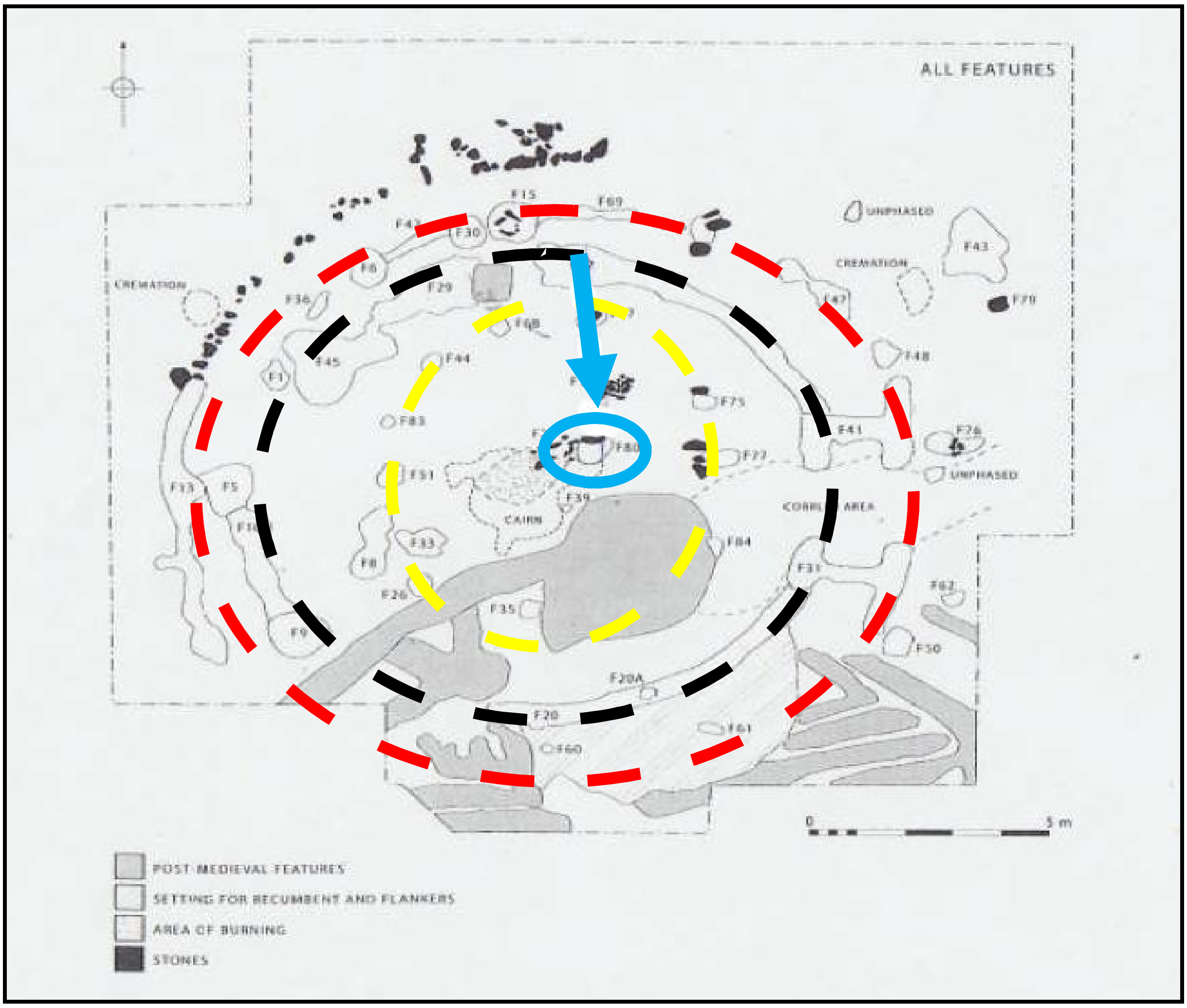


Figure 31. The revised sequence for the site of Strichen. (From Phillips *et al*. 2006, with amendments). The figure demonstrates the three main phases at Strichen; Phase I timber circle marked out in yellow, Phase II stone circle marked out in red, Phase III round house marked in black. The figure also shows the alignment suggested by Phillips *et al* between the decorated stone and recumbent stone.

5.15.3: <u>Dimensions & Orientations</u>

<u>Timber circle</u>; 9 outer posts surrounding 1 central post. **Orientation:** Unknown.

<u>Stone circle</u>; 14 stones. **Orientation:** Recumbent stone positioned in the north of the circle.

5.15.4: <u>Assessment of the Contextual Data</u>

During excavations at Strichen the remains of a ring of timbers consisting of 8 large timbers and one central post, several burials and an Iron Age hut were found to lie within the confines of a recumbent stone circle that was made up of 14 stones set in a rubble bank (Phillips *et al*. 2006). It has been suggested (Phillips *et al.* 2006) that the recumbent stone circle pre-dated the construction of the timber circle on account of the fact that a decorated stone, recovered from post hole (f17), was believed to form part of a grave cover for one of the central stone lined graves (f23) that the excavators believed to be contemporary with the stone circle. This theory is further supported by the belief that the observable alignment between this decorated stone (in the post packing of (f17), the central post of the timber circle and the recumbent stone (Phillips *et al.* 2006) could not have occurred had the stone circle not been the primary construction at this site (see figure 31, alignment marked out in blue). Nevertheless, while such an interpretation of the contextual data observed at Strichen is indeed feasible it is rejected by this study in favour of an alternative hypothesis.

For while there does indeed appear to be an observable alignment between the recumbent stone, the central post and the decorated stone there is no evidence to prove that this was a deliberate act. It is also clear that the stone circle in no way respects the layout of the ring of posts to the extent that the surviving post-holes were found to be positioned off centre and aligned towards the north-eastern section of the area enclosed by the stone circle (See figure 31, sections marked out in yellow and red). Such a misalignment between these constructed features, as has been observed elsewhere by this study, suggests a timber circle - stone circle sequence as opposed to the reverse. The fact that Grave (f23) lies in close proximity to the central post, does not necessarily make these two features related as this grave was clearly demonstrated to cut the material that made up the central cairn which was believed to be associated with the recumbent stone circle during excavation. Such evidence rather suggests that the grave and cairn were later additions to the stone circle and not the timber circle. This implies that the decorated stone did not originate from a context associated with the grave and that its proximity to post (f80) seems more likely to be a consequence of the site being reused over a prolonged period of time rather than these two features being contemporary.

It is therefore reasonable to assume that the currently accepted sequence proposed by Phillips *et al*. 2006 is inaccurate. Reassessment by this study proposes a more conventional chronology for this site. The first construction at Strichen was a timber circle consisting of a central off centre post that was encircled by nine outer timbers. Evidence for an additional timber upright in the south eastern section has seemingly been lost. At a later date this timber circle was dismantled, ultimately resulting in all the posts being removed. This subtraction of the timbers coincided with the construction of the recumbent stone circle, rubble bank and central cairn. After an indefinable period several burials including one that was interned close to the former post-hole (f80) and possibly associated with a shard of Beaker Ware were placed throughout the interior of the site. The final construction was easily identifiable as a hut that was constructed during the Iron Age that occupied the area initially defined by the recumbent stone circle.

5.15.5: <u>Assessment of the Datable Evidence</u>

The recovered datable evidence is insufficient to enable an accurate chronological sequence to be established. For example (BM-2316R) was a bulk sample of *Alnus* charcoal from the base of a pit that had been dug into the rubble bank to house a cremation and dated to the period *circa* 2026-1419BC. Such a sample can at best only provide a *terminus ante quem* for the construction of the bank and places its construction at some point in the Early Bronze Age. Even though the degree to which the construction of the stone bank pre-dated the insertion of the burial associated with (BM-2316R) is unknowable, this determination can be considered far more useful than (HAR-4301) *circa* 1212-399BC (which was a bulk sample of charcoal/soil from a similar deposit) on account of the fact that this determination is far later than (BM-2316R) and thus merely dates the act of deposition rather than the construction of the rubble bank (Phillips *et al*. 2006).

The remaining two determinations; (BM-2315R) *circa* 891-210BC and (BM-2317R) *circa* 800-172 BC were samples of Alnus charcoal from the base of the foundation trench for the wall of the round house. These two determinations derive from short lived materials and were recovered from a context that was directly associated with the initial construction of the round house. As a consequence it was possible to firmly place the building of this round house within the Iron Age, a period well associated with such constructions (Phillips *et al*. 2006). The recovered ceramic evidence from Strichen was limited to sherds of Beaker Ware from the disturbed rubble bank and from the disturbed area beside the central grave (F23). Such evidence from these two contexts is in agreement with the chronological sequence proposed for the constructed features at this site and places their initial inception within the Bronze Age.

5.15.6: Conclusion

The theory that the recumbent stone circle pre-dated the constructed of the timber circle at the site of Strichen (Phillips *et al*. 2006) has been rejected by this study. This is due to the fact that this reassessment has been able to highlight the reality that the stone circle does not respect the layout of the timber circle, to the extent that the ring of posts was found to be positioned off centre and aligned towards the north-eastern section of the enclosed area. When this data is considered in conjunction with the reality that the graves at this site are seemingly later than the timber circle and therefore more likely to be closely associated with the stone circle it does indeed suggest that the timber circle was the primary construction at this site. Unfortunately the datable evidence from the site of Strichen is insufficient to support this newly proposed sequence on account of the reality that this data can only provide a *terminus ante quem* for the construction of the stone bank to some point within the Early Bronze Age.

5.15.4: Verdict

TIMBER CIRCLE - STONE CIRCLE & GRAVES – ROUND HOUSE.

Case Study 14: Temple Wood (North).

5.16.1: Description

Timber circle with a central feature that was replaced by an uncompleted stone circle, possibly of 16 stones. This was in turn replaced by a spread of pebbles and central recumbent stone.

5.16.2: Plan/Diagram

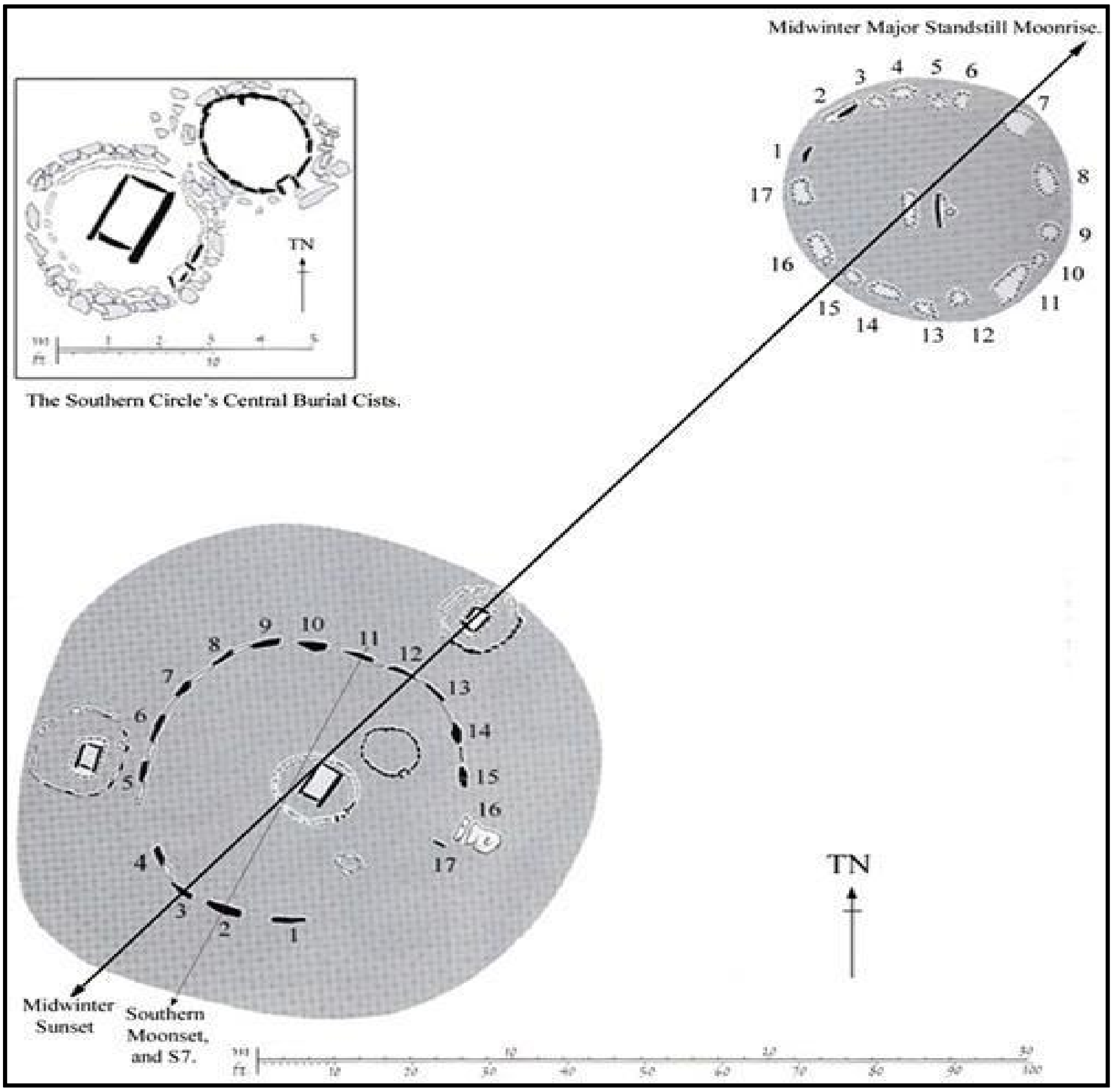


Figure 32. Plan of the structures at Temple Wood. (From Scott 1988). The figure demonstrates the proximity of the two monuments at Temple Wood.

5.16.3: <u>Dimensions & Orientations</u>

<u>Timber circle</u>; 10.3m in diameter? Possibly made up of 16 posts?

<u>Stone circle</u>; 10 x 10.5m in diameter, possibly made up of as many as16 stones.

5.16.4: <u>Assessment of the Contextual Data</u>

The excavations at Temple Wood (North) that took place during four seasons (Scott 19741980) highlighted that below the visible remains of what was believed to be a stone circle laid the remnants of an earlier timber circle (Scott 1988). Both structures measured *circa* 10 meters in diameter and are believed to have consisted of 16 posts in the case of the timber circle and 16 stones in the case of the stone circle (see figure 32). The primacy of the ring of posts at Temple Wood (North) over the stone circle was clearly demonstrated during excavation on account of the fact that several of the stone-holes relating to the stone circle were observed to cut or seal post-holes pertaining to the earlier timber circle. For example sockets 3, 5, 15 and probably 1, 2, 10, 11, 12 and 13 all showed signs of holding both a series of posts and stones. Of these sockets; 5, 13 and 15 had extensions, usually in the form of post-ramps that may have been used to either insert or remove the posts (Scott 1988). It has been suggested that a phase may have occurred where a combined timber and stone structure existed as opposed to two single phased monuments i.e. one of stone replacing one of timber (Orkney 1988). However such a theory seems unlikely on account of the fact that stone-holes were clearly observed overlying the areas previously occupied by earlier post-holes.

Despite this evidence showing the primacy of the timber circle over the stone circle at Temple Wood (North) it is less clear whether the construction of the stone circle was ever completed. This is due to the fact that several of the holes dug to presumably house stones were backfilled before any stones were placed within them. Whether the stone circle was ever finished or not is open to interpretation, however what is more clear is that at some point all the stones were removed and the boundary of the site was marked out by a spread of large pebbles. A recumbent stone was then placed in the centre of the site that cut an earlier posthole relating to the timber circle discussed above (Scott 1988). It may be the case that the later alterations at Temple Wood (North) were a consequence of the possibility that the southern circle was built to replace the northern circle as a purpose built monument made of stone, the spread of pebbles at the northern circle then merely being added as a way of closing or marking the existence of the earlier monument.

5.16.5: <u>Assessment of the Datable Evidence</u>

Despite the majority of the site at Temple Wood (North) being the subject of archaeological investigation during the period 1974-1980, relatively little datable evidence was recovered. Indeed excavations were only able to locate sufficient material that could be subjected to radiocarbon analysis from one context. During the excavation of stone-hole 8 a sample of oak charcoal (GU-1296) was recovered that produced a date of *circa* 4316-3377BC when subjected to analysis. It has been suggested that this sample (as a consequence of its recovered location) provides a date for the point in time at which the transition from a timber monument to one made of stone occurred (Scott 1988). In spite of such claims it has proved problematic to determine the true origin of this sample as it is uncertain whether this sample of oak charcoal was a piece of surviving heartwood from the earlier timber circle or residual material that became incorporated into stone hole 8 prior to it being erected. Therefore when factors such as the ‘old wood problem’ are considered in conjunction with the uncertainties relating to the provenance of the dated sample, it is clear that this determination does not date the transition from one monumental form to another but rather it provides a *terminus ante quem* for the destruction of the timber circle and a *terminus post quem* for the construction of the stone circle respectively.

5.16.6: <u>Conclusion</u>

The first construction at the site of Temple Wood (North) was clearly demonstrated to have been a timber circle, as several of the stone-holes including (3, 5, 15 and probably 1, 2, 10, 11, 12 and 13) relating to the later stone circle cut or sealed the post-holes of the timber circle (Scott 1988). It is less clear whether the later stone circle was ever completed as many excavated pits that were believed to have been initially intended to house stones were filled in. This does not mean that there was a phase that saw timbers and stones standing in unison but rather suggests that the intention of building a larger stone circle than was actually built were quashed in favour of the monument that the excavators of the site were presented with during archaeological investigation. The final phase of construction at this site was clearly demonstrated to have consisted of a spread of pebbles being laid over the boundaries of the stone circle and a recumbent stone circle being placed within its centre, a stone that may or may not have formed part of the original stone circle.

The unknown origins of the dated charcoal (GU-1296) (despite being recovered from a secure context) relating to this site is unable to prove with any degree of accuracy the length of time that elapsed between the posts of the timber circle being remove in favour of the construction of a new stone circle. At best it is only possible to suggest a *terminus ante quem* for the construction/destruction of the timber circle and a *terminus post quem* for the construction of the stone circle. This determination cannot in the opinion of this study demonstrate how quickly the stone circle followed the initial timber circle. Nevertheless when the date from the Northern Circle is compared to those pertaining to the Southern Circle it does indeed show that the Southern Circle was a later construction. In light of such information it is the opinion of this study that this is due to the reality that the Southern Circle was constructed as a direct replacement for the earlier Northern Circle.

5.16.7: <u>Verdict</u>

TIMBER CIRCLE – PARTIALLY COMPLETED STONE CIRCLE – ALL STRUCTURES REMOVED - A RECUMBERNT STONE CIRCLE & SPREAD OF PEBBLES PLACED TO MARK OUT THE SITE – SITE REPLACED BY SOUTHERN CIRCLE.

Case Study 15: Woodhenge.

5.17.1: Description

Class I henge monument with a substantial berm separating the ditch and bank that enclosed a setting of six concentric rings of timbers of varying sizes, some with accompanying post ramps and a small stone cove.

5.17.2: Plan 1/Diagram

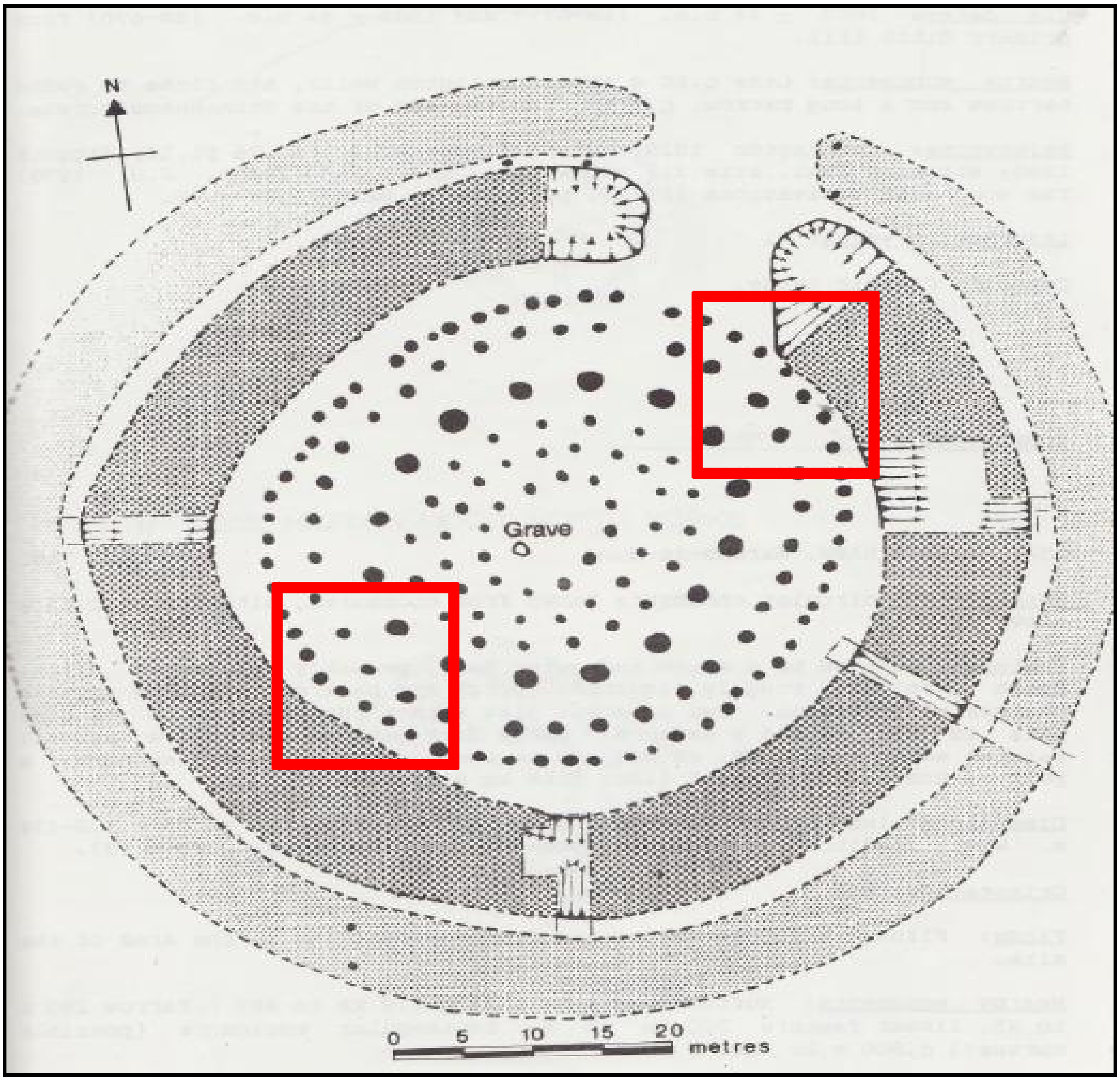
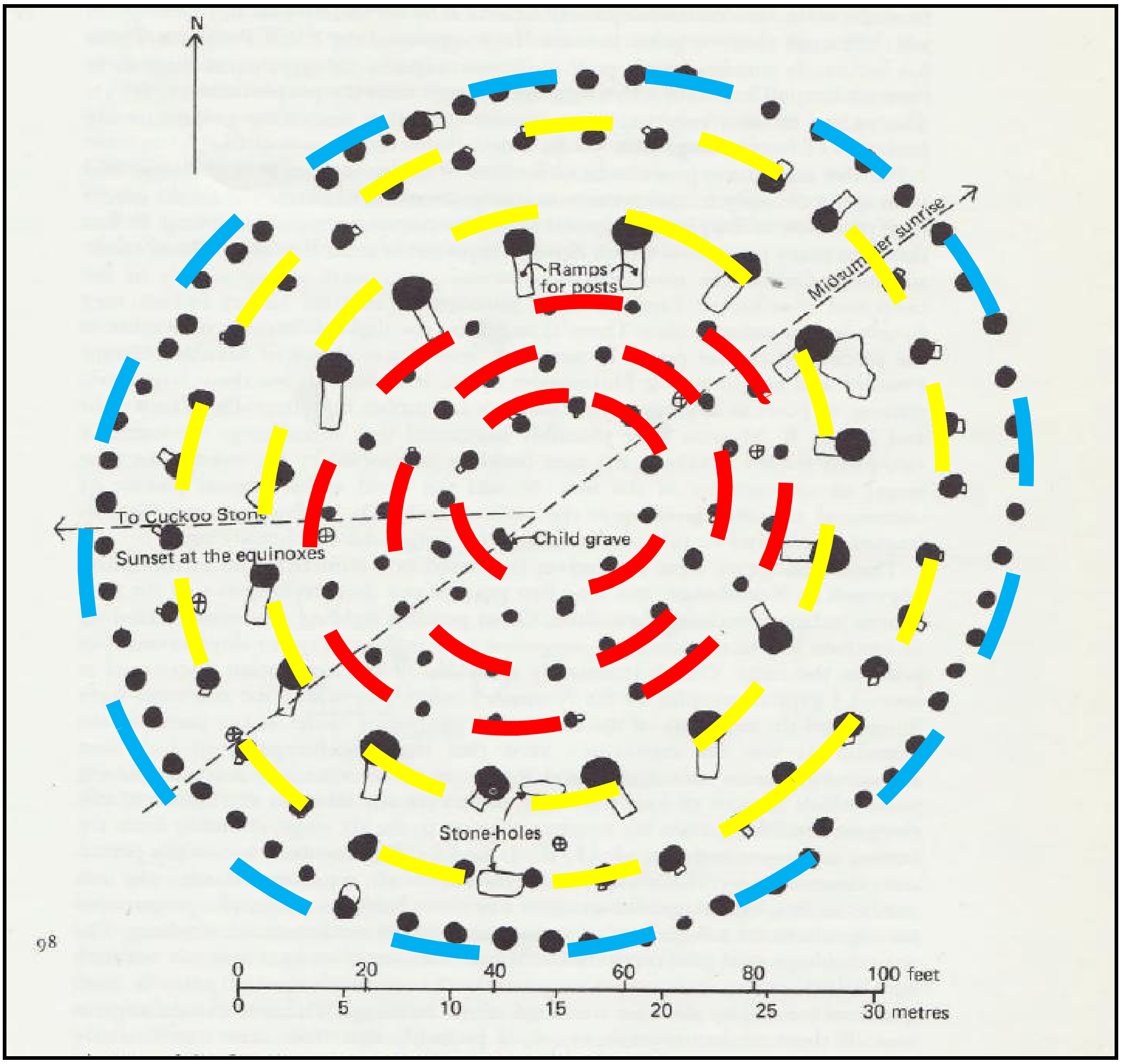


Figure 33. The constructed features at the site of Woodhenge. (From Cunnington 1929, with amendments). The figure demonstrates the proximity of the outer ring of timbers to the inner henge ditch (areas marked in red).

5.17.2: Plan 2/Diagram



Reproduction of Figure 4. The Phases of construction for the timber circles at Woodhenge. (From Cunnington 1929, with amendments). The plan demonstrates the three phases of construction suggested by this study, phase I is marked out in red, phase II is denoted in yellow and the likely 3rd phase is marked out in blue.

5.17.3: Dimensions & Orientations

Henge; Internal diameter 46-48.5m, ditch 9-12m wide. **Orientation:** North-North-Eastern facing entrance.

Timber circles; Ring A – 60posts 44m in diameter, Ring B – 34 posts 38m in diameter, Ring C – 16 posts 29m in diameter, Ring D – 19 posts 23.5m in diameter, Ring E – 18 posts 17.5m in diameter, Ring F – 12 posts 11.7m in diameter. **Orientation:** Unknown.

5.17.4: <u>Assessment of the Contextual Data</u>

Prior to the 1926-1928 excavations by the Cunningtons, the site of Woodhenge was believed to have been a round barrow. However investigations proved that this site was in fact a class I henge monument that enclosed the post-holes of six concentric rings of timbers (Cunnington 1929). Initially the Cunningtons believed that the rings of timbers and the encircling henge were contemporary constructions that formed integral parts of one monument. However subsequent analysis of the data by Piggott (1939) highlighted evidence that suggested this may not have been the case. Piggott proposed that the rings of timbers had originally formed a hut like structure and as such some of the posts were likely to have been intended to support a roof (Piggott 1939).

The accuracy of this interpretation of the contextual data with regards to the appearance of the timbers is open to interpretation; nevertheless Piggott raised an interesting point with regards to the chronological order of how the site may have been constructed. For example he suggested that Ring A must have replaced Ring B and that when Ring C was constructed Rings D-F could not have been *in situ*. Piggott reached this conclusion on account of believing that these identifiable separate phases were a result of the 'hut' either being extended or having its roof replaced on several occasions.

Analysis of the original excavation report by the Cunningtons' and Piggott's reassessment of the data does indeed highlight the likelihood that all 6 rings of posts did not stand *in situ* at the same time. It is clear that every post-ramp relating to Ring C faces in a southerly direction, this means that Rings D-F could not have been standing when the timbers of Ring C were erected. This is due to the fact that the presence of rings D-F would have made it impossible for the builders of ring C to use its associated large post-ramps to erect the posts on account of the proximity of these smaller outer rings (see figure 4). With this information in mind it is reasonable to see the timber circles at Woodhenge not as a series of six concentric circles but rather as two separate monuments each consisting of three rings of posts.

In the first instance it seems likely that Rings D, E & F were the initial construction at Woodhenge forming three concentric rings of timbers. This monument was then either abandoned leaving the posts to rot *in situ,* or dismantled in order for these timbers to be replaced by a much larger circle that had a more substantial setting of posts in its interior (Ring C) and an encircling ring of smaller timbers (Ring B) that had an entrance in the northwest. Ring B either had an accompanying encircling ring of timbers (Ring A) or was replaced by this circle at an even later date (possibly as result of the timbers of these outer rings being so slight in comparison to the inner rings). It seems unlikely that either of these timber phases were contemporary with the initial construction of the henge.

This is due to the fact that the outer ring of timbers (Ring A) is perilously close to the inner lip of the henge ditch to the extent that in some cases several post-holes are nearly cut by it. In addition it is reasonable to suggest that if the timber circles were visible to those excavating the ditch surely greater care would have been taken to ensure that the pre-existing monument sat concentrically within the ditch (as opposed to how they were sited) (see figure 33, areas marked out in red). Such evidence suggests that the timbers were not standing when the ditch was excavated, nor were they added to the centre of a pre-existing bank and ditch but rather that they had already been removed or rotted prior to the construction of the henge.

The primacy of the timber circles over the henge monument is also suggested by the fact that the presumed entrances of Rings A&B do not align with the unquestionable entrance of the henge. Had the timber circles been a later addition to the henge then it is reasonable to assume that the entrances of the interior features would have been built to align with the pre-existing henge entrance. The fact that they are not implies that the henge was constructed around a pre-existing area of significance where the former entrance into the timber circles was still visible but not to the extent that alignments could be replicated in their entirety.
Contemporary re-excavation of the Cunnington's trenches has highlighted that the timbers were replaced by a smaller, rectilinear arrangement of standing stones (Pollard & Robinson 2007). Excavations have highlighted the fact that there were two phases to this replacement in stone and that the stones may have formed a three-sided 'cove' similar to that known at Avebury. It is unclear whether this phase was contemporary with the building of the henge or not (Pollard & Robinson 2007).

5.17.5: <u>Assessment of the Datable Evidence</u>

The fact that the primary excavation of Woodhenge was carried out prior to the advent of scientific dating techniques meant that the initial dating of the site relied heavily upon the establishment of relative chronologies for the recovered artefactual evidence. Analysis of this evidence shows how sherds of Grooved Ware were recovered from the primary silts of the henge ditch, the old land surface that was sealed beneath the henge bank and from several post-holes of the timber rings. The fact that materials that are of similar date were recovered from contexts associated with the primary construction of both the series of post rings and the construction of the class I henge monument (Cunnington 1929) makes the formulation of a chronological sequence for the constructed elements of this site based upon this evidence problematic. The radiocarbon evidence from Woodhenge originates from an excavation carried out several decades after the Cunningtons' initial investigations (Wainwright & Evans, 1979). This later excavation was tasked with recovering datable evidence that could assist in providing an accurate date for the construction of the henge.

Two samples were recovered during this excavation of the henge ditch, both of which came from primary contexts. A sample of an antler pick from the base of the henge ditch in the south-west sector dated to the period *circa* 2467-2050BC (BM-677), while (BM-678) *circa* 2396-1980BC was a sample of animal bone from the primary rock fill of the ditch in the south-west sector (Wainwright & Evans 1979). The provenance of these samples can be considered reliable and implies that these two samples entered this location shortly after the henge ditch was excavated. It has been suggested that picks such as the one recovered from Woodhenge were used to excavate the henge ditch and as such this sample could be directly related to the building of this monument.

The fact that both determinations were generated by analysis of short lived materials means that both dates provide a relatively reliable date for the construction of the henge. However, despite the reliability of such datable evidence it is insufficient to enable the formulation of a chronological sequence for the remaining constructed elements at this site. The difficulty in ascertaining suitable materials to subject to radiocarbon analysis has recently been proven during contemporary excavations. These recent investigations were unable to recover any datable materials and any chronology can at best be based upon the data generated by Wainwright's excavations (Pollard & Robinson 2007).

5.17.6: <u>Conclusion</u>

Analysis of the contextual data from Woodhenge highlights that the six rings of timbers were not contemporary nor were any of these circles of posts *in situ* when the class I henge monument was constructed. This is due to the fact that for while there are no direct stratigraphic interactions between constructed features at this site the alignments of the postramps and proximity of the timber rings to one another and in some cases to the lip of the henge ditch make an alternative hypothesis appear unlikely. Despite the contextual data pointing to the site of Woodhenge having a complex history the datable evidence suggests that the transitions between the various structures may have occurred within a relatively short period of time. This is due to the fact that the same ceramic form (Grooved Ware) was recovered from beneath the henge bank and from the primary ditch silts in addition to being recovered from several post-holes. The fact that the Grooved Ware tradition extended over a relatively long period means that it is difficult to place the construction of these monuments to a specific point in time. However the fact that two reliable radiocarbon determinations have been recovered from the primary silts of the henge ditch has assisted greatly in pinpointing a place in time at which the henge was excavated. These two dates also provide a *terminus ante quem* for the erection of the rings of timbers on account of them being proven to pre-date the construction of the henge. It is clear that the final act at Woodhenge consisted of the construction of a stone cove, which unquestionably occurred after the timbers had either been removed or had rotted *in situ*.

5.17.7: <u>Verdict</u>

RINGS D, E & F - RINGS C & B – RING A – HENGE – STONE COVE.

Appendix II

A Reassessment of the Datable Evidence.

Appendix II

The following data held within this Appendix contains the results of the reassessment that was carried out by this study upon the radiocarbon evidence relating to the selected timber circle, henge monument and stone circle sites (See site catalogue, Appendix III). This re-evaluation sought to establish the degree to which each individual radiocarbon determination could be considered accurate with regards to its ability to be reliably associated with the act or event that it has been used to date. The accuracy of these data was established by considering the restrictive factors that were highlighted in chapter 3 such as; inconsistent sampling strategies, age at death offsets and the limitations of radiocarbon dating in conjunction with the findings and recommendations made by similar earlier reassessments of radiocarbon dates (See chapter 4). This re-evaluation is separated into three sections for each of the three monumental forms; these sections consist of determinations that are considered reliable, less reliable and finally those that are considered unreliable. The criteria by which each determination has been graded can be found in tables 1-3, while the determinations themselves were recalibrated using the latest available OxCal software, that of OxCal V4.1.7. Discussions regarding the impact that these data have upon the reliability of the currently accepted chronologies for timber circles, stone circles and henge monuments can be found in chapters 6 and 7 and Appendix I, case studies.

Key

A	Antler
AB	Animal Bone
BT	Burnt Timber
CB	Cremated Bone
CH	Charcoal
HB	Human Bone
OS	Oak Stake
PL	Plank
SF	Skull Fragment
WD	Wood

Charcoal Species

(A)	Alder
(B)	Beech
(E)	Elm
(H)	Hazel
(O)	Oak
(U)	Unspecified species
(M)	Mixed Charcoal

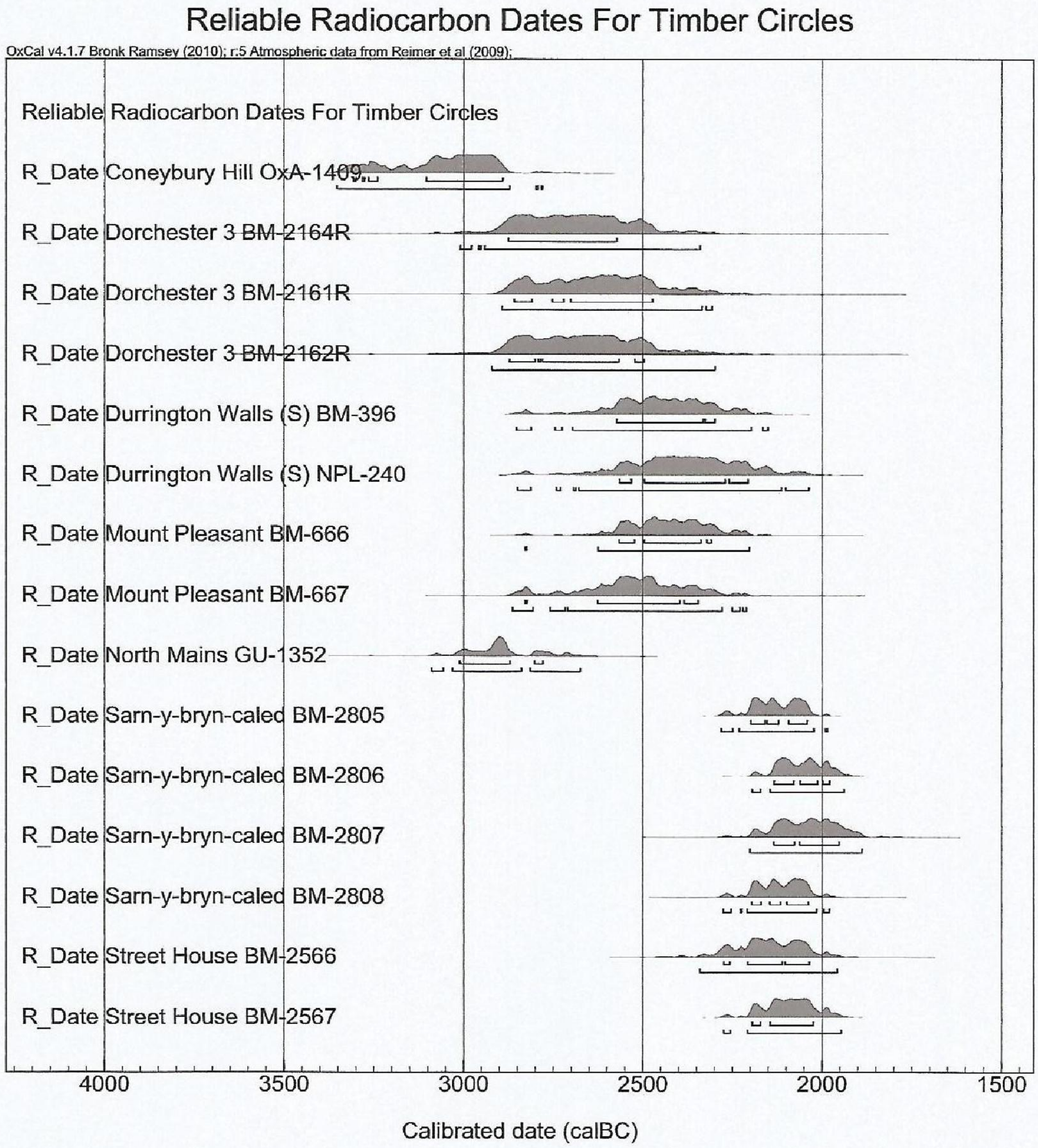


Table 5: Reliable Radiocarbon Dates For Timber Circles

Name	Unmodelled (BC/AD)					
	from	to	%	from	to	%
Reliable Radiocarbon Dates For Timber Circles						
R_Date Coneybury Hill OxA-1409	-3309	-2892	68.3	-3354	-2781	95.4
R_Date Dorchester 3 BM-2164R	-2876	-2573	68.2	-3010	-2341	95.5
R_Date Dorchester 3 BM-2161R	-2859	-2473	68.2	-2893	-2307	95.4
R_Date Dorchester 3 BM-2162R	-2872	-2497	68.2	-2921	-2299	95.4
R_Date Durrington Walls (S) BM-396	-2573	-2299	68.2	-2853	-2151	95.4
R_Date Durrington Walls (S) NPL-240	-2565	-2206	68.1	-2849	-2037	95.4
R_Date Mount Pleasant BM-666	-2566	-2309	68.2	-2828	-2203	95.4
R_Date Mount Pleasant BM-667	-2829	-2346	68.2	-2864	-2211	95.4
R_Date North Mains GU-1352	-3011	-2779	68.2	-3089	-2675	95.4
R_Date Sarn-y-bryn-caled BM-2805	-2199	-2042	68.2	-2281	-1985	95.4
R_Date Sarn-y-bryn-caled BM-2806	-2134	-1979	68.2	-2195	-1939	95.4
R_Date Sarn-y-bryn-caled BM-2807	-2135	-1953	68.2	-2201	-1889	95.4
R_Date Sarn-y-bryn-caled BM-2808	-2196	-2039	68.2	-2276	-1980	95.3
R_Date Street House BM-2566	-2274	-2036	68.2	-2341	-1958	95.4
R_Date Street House BM-2567	-2195	-2025	68.2	-2274	-1946	95.4

Table 6: Reliable Radiocarbon Dates For Timber Circles (RAW Data).

Site	Date uncal BP	Date cal BC Sigma (68%)	Date cal BC Sigma 2 (95%)
Dorchester 3	BM-2161R 4060 ± 110BP	2859-2473	2893-2307
Dorchester 3	BM-2162R 4100 ± 120BP	2872-2497	2921-2299
Dorchester 3	BM-2164R 4120 ± 120BP	2876-2573	3010-2341
Durrington Walls (S)	BM-396 3950 ± 90BP	2573-2299	2853-2151
Durrington Walls (N)	NPL-240 3905 ± 110BP	2565-2206	2849-2037
Mount Pleasant	BM-666 3941 ± 72BP	2566-2309	2828-2203
Mount Pleasant	BM-667 3988 ± 84BP	2829-2346	2864-2211
North Mains	GU-1352 4280 ± 60BP	3011-2779	3089-2675
Sarn-y-bryn-caled	BM-2805 3730 ± 40BP	2199-2042	2281-1985
Sarn-y-bryn-caled	BM-2806 3670 ± 40BP	2134-1979	2195-1939
Sarn-y-bryn-caled	BM-2807 3660 ± 60BP	2135-1953	2201-1889
Sarn-y-bryn- caled	BM-2808 3720 ± 40BP	2196-2039	2276-1980
Street House	BM-2566 3740 ± 60BP	2274-2036	2341-1958

Site	Date uncal BP	Date cal BC Sigma (68%)	Date cal BC Sigma (68%)
Street House	BM-2567 3700 ± 50BP	2195-2025	2274-1946

Table 7: Reliable Radiocarbon Determinations For Timber Circles (Calibrated Date Ranges).

Site	Lab No	Material/Context	Reason	Relationship	Age offset
Dorchester 3	BM-2164R	CH (O) / Burnt post	Dated sample relates directly to the timber structure.	1	1
Dorchester 3	BM-2161R	CH (O) / Burnt post	Dated sample relates directly to the timber structure.	1	1
Dorchester 3	BM-2162R	CH (O) / Burnt post	Dated sample relates directly to the timber structure.	1	1
Durrington Walls (S)	BM-396	A / Post-hole	Provides *terminus post quem* for the erection of phase II post.	2	1
Durrington Walls (N)	NPL-240	A / Post-hole	Provides *terminus post quem* for the erection of phase II post.	2	1
Mount Pleasant	BM-666	A / Ditch	*Terminus ante quem* for the Construction of the ditch of site IV.	2	1

Site	Lab No	Material/Context	Reason	Relationship	Age Offset
Mount Pleasant	BM-667	AB / Ditch	*Terminus ante quem* for the construction of the ditch of site IV.	3	1
North Mains	GU-1352	PL / Post-hole	Plank may have been part of the timber circle structure.	1	1
Sarn-y-bryn-caled	BM-2805	CH / Post-hole	Charcoal from the charring of the post prior to it being inserted in the posthole.	1	1
Sarn-y-bryn-caled	BM-2806	CH / Post-hole	Charcoal from the charring of the post prior to it being inserted in the posthole.	1	1
Sarn-y-bryn-caled	BM-2807	CH / Post-hole	Charcoal from the charring of the post prior to it being inserted in the posthole.	1	1
Sarn-y-bryn-caled	BM-2808	CH / Post-hole	Charcoal from the charring of the post prior to it being inserted in the posthole.	1	1

Site	Lab No	Material/Context	Reason	Relationship	Age Offset
Street House	BM-2566	CH (O) / Palisade	Charcoal from the charring of the post prior to it being inserted in the posthole.	1	1
Street House	BM-2566	CH (O) / Palisade	Charcoal from the charring of the post prior to it being inserted in the posthole.	1	1

Table 8: Reliable Radiocarbon Determinations For Timber Circles (Relationship/Age Offset).

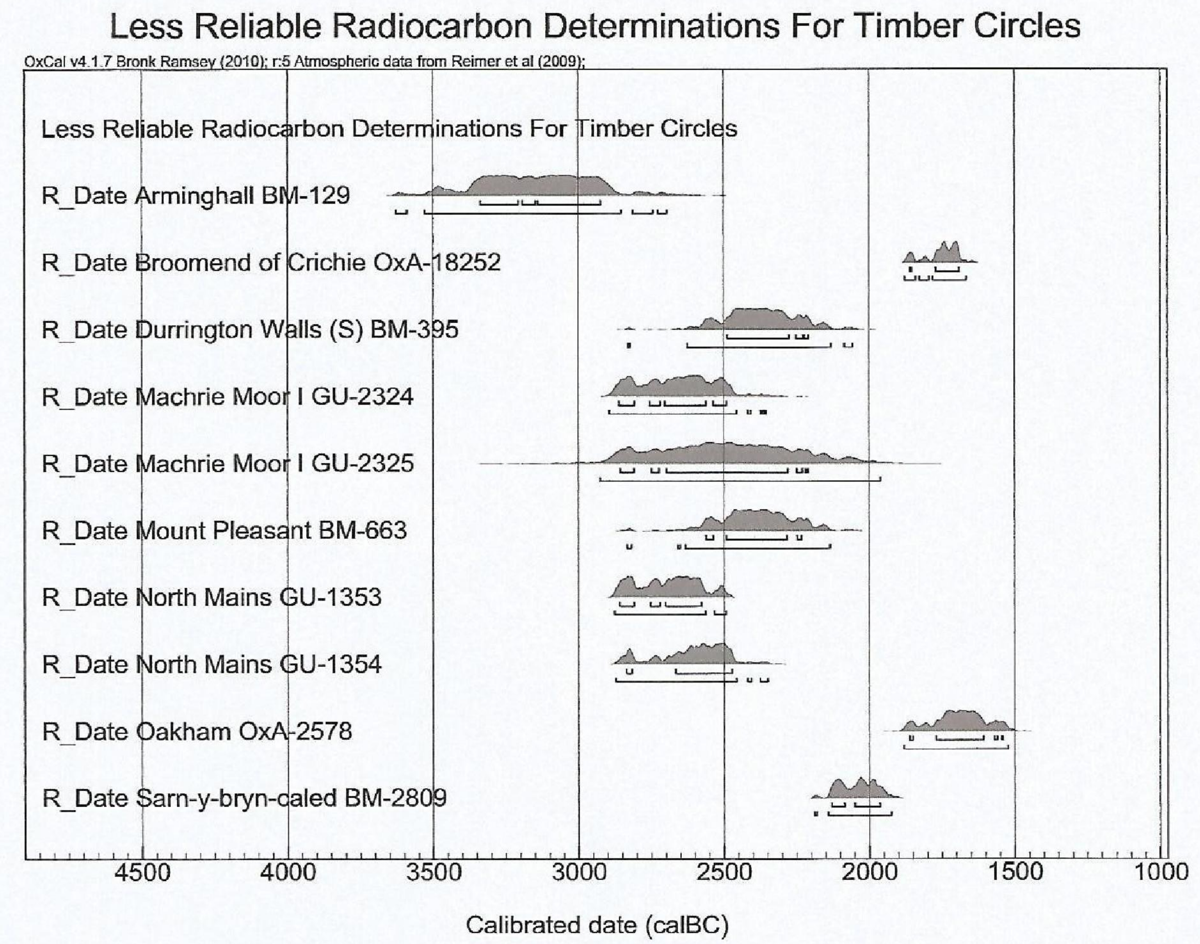


Table 9: Less Reliable Radiocarbon Dates For Timber Circles.

Name	Unmodelled (BC/AD)					
	from	to	%	from	to	%
Less Reliable Radiocarbon Determinations For Timber Circles						
R_Date Arminghall BM-129	-3337	-2924	68.2	-3628	-2696	95.3
R_Date Broomend of Crichie OxA-18252	-1860	-1690	68.2	-1878	-1665	95.4
R_Date Durrington Walls (S) BM-395	-2488	-2209	68.2	-2829	-2056	95.4
R_Date Machrie Moor I GU-2324	-2860	-2492	68.2	-2894	-2356	95.5
R_Date Machrie Moor I GU-2325	-2857	-2212	68.2	-2925	-1962	95.4
R_Date Mount Pleasant BM-663	-2561	-2233	68.2	-2833	-2135	95.4
R_Date North Mains GU-1353	-2859	-2577	68.2	-2877	-2494	95.4
R_Date North Mains GU-1354	-2836	-2472	68.2	-2873	-2351	95.4
R_Date Oakham OxA-2578	-1862	-1541	68.2	-1881	-1523	95.4
R_Date Sarn-y-bryn-caled BM-2809	-2131	-1965	68.2	-2190	-1926	95.4

Table 10: Less Reliable Radiocarbon Dates For Timber Circles (RAW data).

Site	Date uncal BP	Date cal BC Sigma 1 (68%)	Date cal BC Sigma 2 (95%)
Arminghall	BM-129 4440 ± 150BP	3337-2924	3628-2696
Broomend of Crichie	OxA-18252 3432 ± 30BP	1860-1690	1878-1665
Coneybury Hill	OxA-1409 4370 ± 90BP	3309-2892	3354-2781
Durrington Walls (S)	BM-395 3900 ± 90BP	2488-2209	2829-2056
Machrie Moor I	GU-2324 4080 ± 90BP	2860-2492	2894-2356
Machrie Moor I	GU-2325 3980 ± 180BP	2857-2212	2925-1962
Mount Pleasant	BM-663 3911 ±8 9BP	2561-2233	2833-2135
North Mains	GU-1353 4105 ± 60BP	2859-2577	2877-2494
North Mains	GU-1354 4040 ± 70BP	2836-2472	2873-2351
Oakham	OxA-2578 3390 ± 70BP	1862-1541	1881-1523
Sarn-y-bryn-caled	BM-2809 3660 ± 40BP	2131-1965	2190-1926

Table 11: Less Reliable Radiocarbon Determinations For Timber Circles (Calibrated Date Ranges).

Site	Lab No	Material/Context	Reason	Relationship	Age Offset
Arminghall	BM-129	CH (O) / Post-hole	Provides *terminus post quem* for the erection of the post.	3	3
Broomend of Crichie	OxA-18252	CH (B) / Post-hole	Provides *terminus post quem* For the erection of the post.	3	2
Coneybury Hill	OxA-1409	AB / Post-hole	Provides *terminus post quem* for the erection of the post.	3	1
Durrington Walls (S)	BM-395	CH (O) / Post-hole	Provides *terminus post quem* for the erection of the post.	3	3
Machrie Moor I	GU-2325	CH (O) / Post-hole	Provides *terminus post quem* for the erection of main ring.	3	3
Machrie Moor I	GU-2324	CH (O) /Post-hole	Provides *terminus post quem* for the erection of main ring.	3	3

Site	Lab No	Material/Context	Reason	Relationship	Age Offset
Mount Pleasant	BM-663	CH (U) / Ditch	Unknown duration, *terminus ante quem* for the construction of ditch.	3	4
North Mains	GU-1353	CH (O) / Post-hole	Provides *terminus post quem* for the erection of the post.	3	3
North Mains	GU-1354	CH (O) / Post-hole	Provides *terminus post quem* for the erection of the post.	3	3
Oakham (phase 3)	OxA-2578	HB / Crouched Burial	Unknown relationship between Burial and timber circle.	4	1
Sarn-y-bryn-*caled*	BM-2809	CH (O) / 2nd Cremation.	May have been related to the initial construction of the timber circle.	2	3

Table 12: Less Reliable Radiocarbon Determinations For Timber Circles (Relationship/Age Offset).

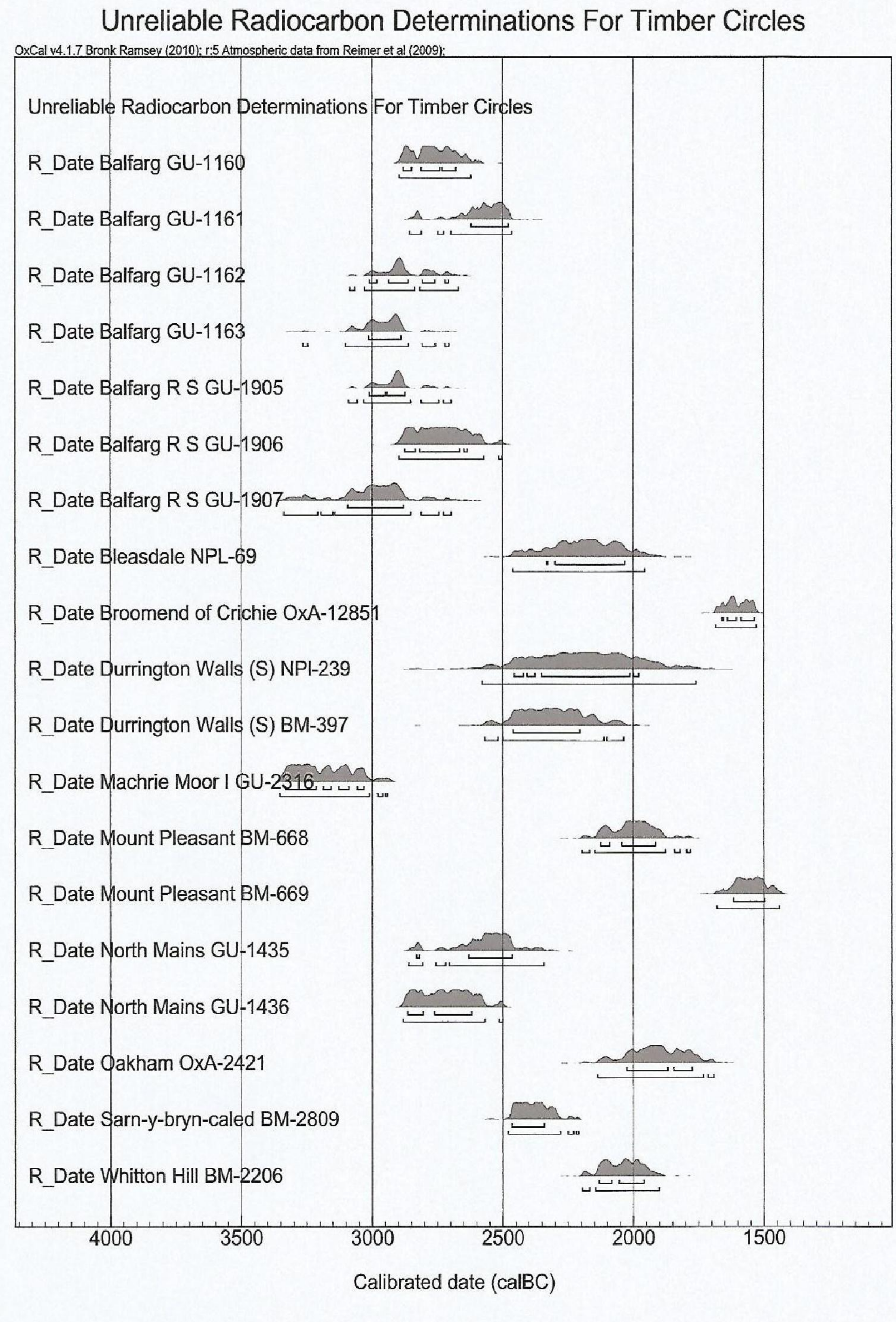


Table 13: Unreliable Radiocarbon Dates For Timber Circles.

Name	Unmodelled (BC/AD)					
	from	to	%	from	to	%
Unreliable Radiocarbon Determinations For Timber Circles						
R_Date Balfarg GU-1160	-2881	-2679	68.2	-2896	-2621	95.4
R_Date Balfarg GU-1161	-2620	-2478	68.2	-2855	-2466	95.4
R_Date Balfarg GU-1162	-3010	-2706	68.1	-3084	-2669	95.4
R_Date Balfarg GU-1163	-3013	-2889	68.2	-3264	-2705	95.4
R_Date Balfarg R S GU-1905	-3011	-2874	68.2	-3090	-2696	95.3
R_Date Balfarg R S GU-1906	-2875	-2636	68.2	-2897	-2503	95.4
R_Date Balfarg R S GU-1907	-3092	-2881	68.2	-3338	-2696	95.3
R_Date Bleasdale NPL-69	-2332	-2032	68.2	-2462	-1957	95.4
R_Date Broomend of Crichie OxA-12851	-1660	-1535	68.2	-1684	-1529	95.4
R_Date Durrington Walls (S) NPl-239	-2456	-1979	68.2	-2578	-1759	95.4
R_Date Durrington Walls (S) BM-397	-2460	-2205	68.2	-2568	-2037	95.4
R_Date Machrie Moor I GU-2316	-3331	-3031	68.3	-3354	-2943	95.4
R_Date Mount Pleasant BM-668	-2125	-1914	68.2	-2197	-1782	95.4
R_Date Mount Pleasant BM-669	-1616	-1497	68.2	-1680	-1441	95.4
R_Date North Mains GU-1435	-2831	-2465	68.2	-2861	-2343	95.4
R_Date North Mains GU-1436	-2866	-2620	68.2	-2884	-2501	95.4
R_Date Oakham OxA-2421	-2024	-1775	68.2	-2137	-1694	95.4
R_Date Sarn-y-bryn-caled BM-2809	-2466	-2342	68.2	-2481	-2211	95.3
R_Date Whitton Hill BM-2206	-2132	-1961	68.2	-2196	-1903	95.4

Table 14: Unreliable Radiocarbon Dates For Timber Circles (RAW data).

Site	Date uncal BP	Date cal BC Sigma 1 (68%)	Date cal BC Sigma 2 (95%)
Balfarg	GU-1160 4180 ± 50BP	2881-2679	2869-2621
Balfarg	GU-1161 4035 ± 50BP	2620-2478	2855-2466
Balfarg	GU-1162 4270 ± 60BP	3010-2706	3084-2669
Balfarg	GU-1163 4315 ± 60BP	3013-2889	3264-2705
Balfarg R S	GU-1905 4285 ± 55BP	3011-2874	3090-2696
Balfarg R S	GU-1906 4155 ± 70BP	2875-2636	2897-2503
Balfarg R S	GU-1907 4330 ± 85BP	3092-2881	3338-2696
Bleasdale	NPL-69 3760 ± 90BP	2332-2032	2462-1957
Broomend of Crichie	OxA-12851 3327 ± 27BP	1660-1535	1684-1529
Durrington Walls (S)	NPL-239 3760 ± 148BP	2456-1979	2578-1959
Durrington Walls (S)	BM-397 3850 ± 90BP	2460-2205	2568-2037
Machrie Moor I	GU-2316 4470 ± 50BP	3331-3031	3354-2943
Mount Pleasant	BM-668 3630 ± 60BP	2125-1914	2197-1782

Site	Date uncal BP	Date calBC Sigma 1(68%)	Date calBC Sigma 2 (95%)
Mount Pleasant	BM-669 3274 ± 51BP	1616-1497	1680-1441
North Mains	GU-1435 4015 ± 65BP	2831-2465	2861-2343
North Mains	GU-1436 4130 ± 60BP	2866-2620	2884-2501
Oakham	OxA-2421 3565 ± 80BP	2024-1775	2137-1694
Sarn-y-bryn-caled	BM-2809 3900 ± 40BP	2466-2342	2481-2211
Whitton Hill	BM-2206 3660 ± 50BP	2132-1961	2196-1903

Table 15: Unreliable Radiocarbon Determinations For Timber Circles (Calibrated Date Ranges).

Site	Lab No	Material/ Context	Reason	Relationship	Age Offset
Balfarg	GU-1160	CH (M) / Post-hole	Mixed charcoal sample / bulk sample from back fill of post-hole.	5	4
Balfarg	GU-1161	CH (M) / Post-hole	Mixed charcoal sample / bulk sample from back fill of post-hole.	5	4
Balfarg	GU-1162	CH (M) / Post-hole	Mixed charcoal sample, bulk sample from back fill of post-hole.	5	4
Balfarg	GU-1163	CH (M) / Post-hole	Mixed charcoal sample, bulk sample from back fill of post-hole.	5	4
Balfarg (RS)	GU-1905	CH (A) / Post-pipe	Unrelated to erection of post.	5	3
Balfarg (RS)	GU-1906	CH (M) / Post-pipe	Unrelated to erection of post.	5	4
Balfarg (RS)	GU-1907	CH (M) / Post-pipe	Unrelated to erection of post.	5	4

Site	Lab No	Material/ Context	Reason	Relationship	Age Offset
Bleasdale	NPL-69	WD / Central Grave	Unknown relationship between monument and the central grave.	5	3
Broomend of Crichie	OxA-12851	CH (H) / Weathering cone of post-hole.	Unrelated to erection of post.	5	3
Durrington Walls (S)	NPL-239	A (M) / Post-holes	Mixed sample from post-holes 133-4, 141, 193-4 of phase I.	5	3
Durrington Walls (S)	BM-397	AB / Post-hole	Mixed sample from multiple post-holes.	5	3
Machrie Moor I	GU-2316	CH (M) / Post-hole	Mixed charcoal sample, bulk sample of deposit from main ring.	5	4
Mount Pleasant	BM-668	CH (O) / Ditch	Hearth located in upper fill of site IV ditch.	5	3

Site	Lab No	Material/ Context	Reason	Relationship	Age Offset
Mount Pleasant	BM-669	CH (O) / Ditch	Hearth located in upper fill of site IV ditch.	5	3
North Mains	GU-1435	CH (O) / Post-pipe	Entered post-pipe after the post had rotted *in situ*.	5	3
North Mains	GU-1436	CH (O) / Post-pipe	Entered post-pipe after the post had rotted *in situ*.	5	3
Oakham (phase I)	OxA-2421	CH (H) & AB / Post-hole	Mixed sample from context believed to be a post-hole.	5	4
Sarn-y-bryn-caled	BM-2809	CH (O) Primary Cremation.	Stratigraphically later than the central posts, anomalous determination.	5	3
Whitton Hill	BM-2206	CH (U) / Central Burial been	The central burial is likely to have a later addition to the site.	4	5

Table 16: Unreliable Radiocarbon Determinations For Timber Circles (Relationship/Age Offset).

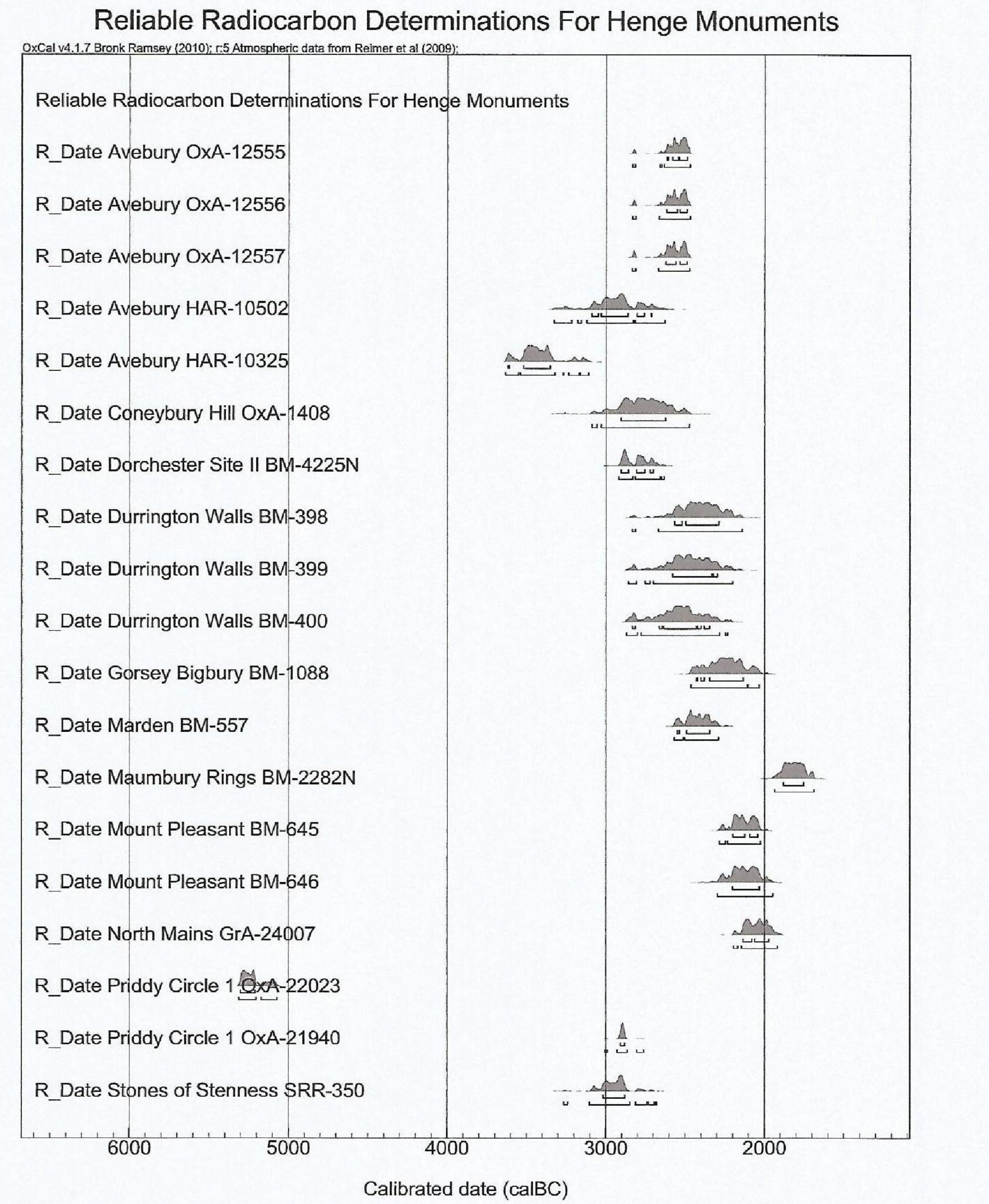


Table 17: Reliable Radiocarbon Dates For Henge Monuments.

Name	Unmodelled (BC/AD)					
	from	to	%	from	to	%
Reliable Radiocarbon Determinations For Henge Monuments						
R_Date Avebury OxA-12555	-2617	-2489	68.2	-2834	-2472	95.4
R_Date Avebury OxA-12556	-2620	-2491	68.2	-2836	-2472	95.4
R_Date Avebury OxA-12557	-2623	-2492	68.2	-2836	-2474	95.4
R_Date Avebury HAR-10502	-3090	-2714	68.2	-3329	-2630	95.3
R_Date Avebury HAR-10325	-3619	-3351	68.2	-3635	-3112	95.4
R_Date Coneybury Hill OxA-1408	-2906	-2624	68.2	-3089	-2475	95.4
R_Date Dorchester Site II BM-4225N	-2906	-2703	68.2	-2921	-2634	95.4
R_Date Durrington Walls BM-398	-2567	-2289	68.2	-2836	-2140	95.4
R_Date Durrington Walls BM-399	-2580	-2299	68.2	-2859	-2202	95.4
R_Date Durrington Walls BM-400	-2834	-2348	68.2	-2871	-2235	95.4
R_Date Gorsey Bigbury BM-1088	-2430	-2135	68.2	-2465	-2036	95.4
R_Date Marden BM-557	-2550	-2345	68.2	-2571	-2291	95.4
R_Date Maumbury Rings BM-2282N	-1881	-1754	68.2	-1937	-1690	95.4
R_Date Mount Pleasant BM-645	-2201	-2043	68.2	-2285	-2025	95.4
R_Date Mount Pleasant BM-646	-2203	-2034	68.2	-2299	-1949	95.4

R_Date North Mains GrA-24007	-2134	-1974	68.2	-2196	-1920	95.4
R_Date Priddy Circle 1 OxA-22023	-5301	-5211	68.2	-5311	-5073	95.4
R_Date Priddy Circle 1 OxA-21940	-2909	-2883	68.2	-3006	-2761	95.4
R_Date Stones of Stenness SRR-350	-3018	-2881	68.2	-3265	-2679	95.4
R_Date Stones of Stenness OxA-9762	-3010	-2631	68.2	-3314	-2491	95.4
R_Date Woodhenge BM-677	-2429	-2144	68.2	-2467	-2050	95.4
R_Date Woodhenge BM-678	-2280	-2045	68.2	-2396	-1980	95.4
R_Date Wyke Down BM-2395	-2851	-2468	68.2	-2878	-2345	95.4

Table 18: Reliable Radiocarbon Dates For Henge Monuments (RAW data).

Site	Date uncal BP	Date cal BC Sigma 1 (68%)	Date cal BC Sigma 2 (95%)
Avebury	OxA-12555 4036 ± 34BP	2617-2489	2834-2472
Avebury	OxA-12556 4043 ± 34BP	2620-2491	2836-2472
Avebury	OxA-12557 4038 ± 34BP	2623-2492	2836-2474
Avebury	HAR-10502 4300 ± 90BP	3090-2714	3329-2630
Avebury	HAR-10325 4640 ± 70BP	3619-3351	3635-3112
Coneybury Hill	OxA-1408 4200±110BP	2906-2624	3089-2475
Dorchester Site II	BM-4225N 4230 ± 50BP	2906-2703	2921-2634
Durrington Walls	BM-398 3927 ± 90BP	2567-2289	2836-2140
Durrington Walls	BM-399 3965 ± 90BP	2580-2299	2859-2202
Durrington Walls	BM-400 4000 ± 90BP	2834-2348	2836-2140
Gorsey Bigbury	BM-1088 3800 ± 74BP	2430-2135	2465-2036
Marden	BM-557 3938 ± 48BP	2550-2345	2571-2291
Maumbury Rings	BM-2282N 3490 ± 50BP	1881-1754	1937-1690

Site	Date uncal BP	Date cal BC Sigma 1 (68%)	Date cal BC Sigma 2 (95%)
Mount Pleasant	BM-645 3734 ± 41BP	2201-2043	2285-2025
Mount Pleasant	BM-646 3728 ± 59BP	2203-2034	2299-1949
North Mains	GrA- 24007 3665 ± 45BP	2134-1974	2196-1920
Priddy Circle 1	OxA-21939 4113±33BP	2853-2589	2867-2576
Priddy Circle 1	OxA-21940 4271±32BP	2909-2883	3006-2761
Priddy Circle 1	OxA-22023 6246±36BP	5301-5211	5311-5073
Stones of Stenness	SRR-350 4306 ± 65BP	3018-2881	3265-2679
Stones of Stenness	OxA-9762 4240 ± 110BP	3010-2631	3314-2491
Thornborough South	BETA-143015 3350 ± 50BP	1729-1536	1750-1511
Woodhenge	BM-677 3817 ± 64BP	2429-2144	2467-2050
Woodhenge	BM-678 3755 ± 54BP	2280-2045	2396-1980
Wyke Down	BM-2395 4040 ± 90BP	2851-2468	2878-2345

Table 19: Reliable Radiocarbon Determinations For Henge Monuments (Calibrated Date Ranges).

Site	Lab No	Material/ Context	Reason	Relationship	Age Offset
Avebury	OxA-12555	(A) / Base of Ditch	Short life material, may have been to excavated henge ditch.	1	1
Avebury	OxA-12556	(A) / Base of Ditch	Short life material, may have been used to excavated henge ditch.	1	1
Avebury	OxA-12557	(A) / Base of Ditch	Short life material, may have been used to excavated henge ditch.	1	1
Avebury	HAR-10502	(A) / Base of Ditch	Short life material, may have been used to excavated henge ditch.	1	1
Avebury	HAR-10325	(AB) / Sealed under henge bank.	Provides *terminus post quem* for the construction of the henge.	2	1

Site	Lab No	Material/ Context	Reason	Relationship	Age Offset
Coneybury Hill	OxA-1408	(AB) / Primary fill of henge ditch.	Short life material, provides *terminus ante quem* for the construction of the henge.	1	1
Dorchester Site II	BM-4225N	(A) Primary fill of henge ditch.	Short life material, provides *terminus ante quem* for the construction of the henge.	1	1
Durrington Walls	BM-398	CH (U) / Base of ditch ditch.	Provides *terminus ante quem* for the construction of the henge.	1	3
Durrington Walls	BM-399	(AB) / Base of henge ditch.	Provides *terminus ante quem* for the construction of the henge.	1	1
Durrington Walls	BM-400	(A) / Base of henge ditch	Short life material, may have been used to excavated henge ditch	1	1

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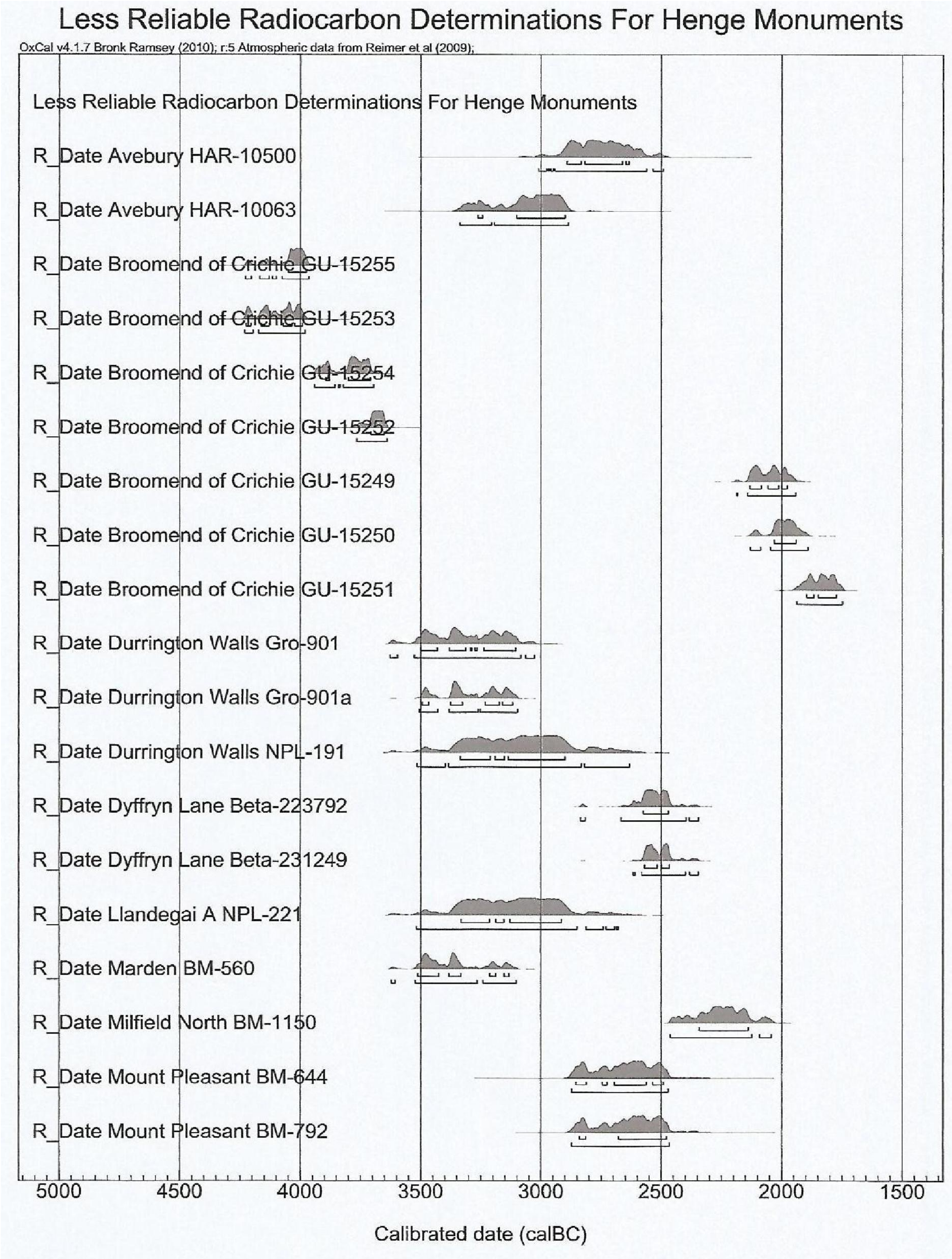
Site	Lab No	Material/ Context	Reason	Relationship	Age Offset
Gorsey Bigbury	BM-1088	(CH) (U) / Base of henge ditch.	Provides *terminus ante quem* for the construction of the henge.	1	3
Marden	BM-557	CH (U) / Primary fill of the henge ditch.	Provides *terminus ante quem* for the construction of the henge.	1	3
Maumbury Rings	BM-2282N	A / Base of shaft 1 henge ditch.	Provides *terminus ante quem* for the construction of the henge.	1	2
Mount Pleasant	BM-645	A / Base of Ditch	Short life material, may have been used to excavated henge ditch.	1	1
Mount Pleasant	BM-646	A / Base of Ditch	Short life material, may have been used to excavated henge ditch.	1	1

Site	Lab No	Material/ Context	Reason	Relationship	Age Offset
North Mains	GrA-24007	CB / Sealed beneath henge bank.	Short life material *terminus post quem* for the construction of the henge.	2	1
Priddy Circle 1	OxA-22023	CH (A) / Sealed beneath henge bank.	Short life material *terminus post quem* for the construction of the henge.	2	2
Priddy Circle 1	OxA-21940	CH (O) / Primary fill of the henge ditch.	Provides *terminus ante quem* for the construction of the henge.	1	3
Priddy Circle 1	OxA-21939	CH (O) / Primary fill of the henge ditch.	Provides *terminus ante quem* for the construction of the henge.	1	3
Stones of Stenness	SRR-350	AB / Primary fill of of the henge ditch.	Provides *terminus ante quem* for the construction of the henge.	1	1

Site	Lab No	Material/ Context	Reason	Relationship	Age Offset
Stones of Stenness	OxA-9762	AB / Primary fill of of the henge ditch.	Provides *terminus ante quem* for the construction of the henge.	1	1
Thornborough	BETA-143015	CH (O) / Primary fill of henge ditch.	Provides *terminus ante quem* for the construction of the henge.	1	3
Woodhenge	BM-677	A / Base of henge ditch.	Short life material, may have been construction of the henge.	1	1
Woodhenge	BM-678	AB / Primary fill of ditch.	Short life material, provides terminus ante quem For the construction of the henge.	1	1
Wyke Down	BM-2395	A / Primary silt of henge ditch.	Provides *terminus ante quem* for the construction of the henge.	1	1

Table 20: Reliable Radiocarbon Determinations For Henge Monuments (Relationship/Age Offset).



Less Reliable Radiocarbon Determinations For Henge Monuments
OxCal v4.1.7 Bronk Ramsey (2010); r:5 Atmospheric data from Reimer et al (2009);
Less Reliable Radiocarbon Determinations For Henge Monuments
R_Date Avebury HAR-10500
R_Date Avebury HAR-10063
R_Date Broomend of Crichie GU-15255
R_Date Broomend of Crichie GU-15253
R_Date Broomend of Crichie GU-15254
R_Date Broomend of Crichie GU-15252
R_Date Broomend of Crichie GU-15249
R_Date Broomend of Crichie GU-15250
R_Date Broomend of Crichie GU-15251
R_Date Durrington Walls Gro-901
R_Date Durrington Walls Gro-901a
R_Date Durrington Walls NPL-191
R_Date Dyffryn Lane Beta-223792
R_Date Dyffryn Lane Beta-231249
R_Date Llandegai A NPL-221
R_Date Marden BM-560
R_Date Milfield North BM-1150
R_Date Mount Pleasant BM-644
R_Date Mount Pleasant BM-792
5000
4500
4000
3500
3000
2500
2000
1500
Calibrated date (calBC)

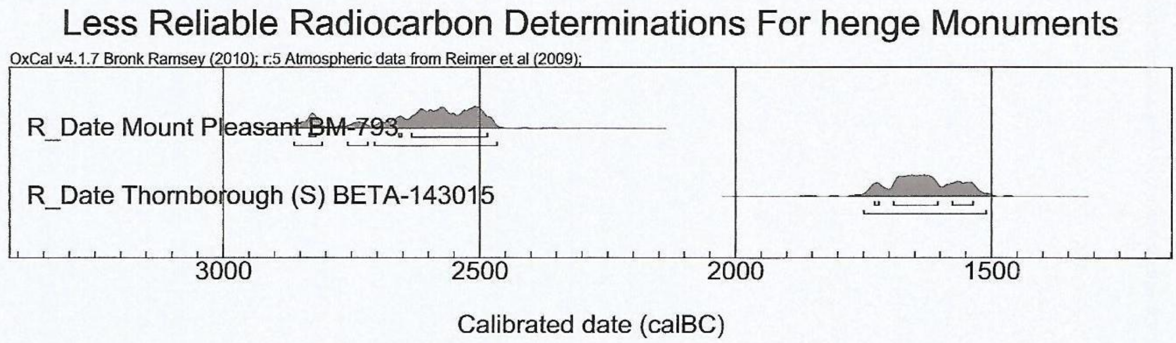


Table 21: Less Reliable Radiocarbon Dates For Henge Monuments.

Name	Unmodelled (BC/AD)					
	from	to	%	from	to	%
Less Reliable Radiocarbon Determinations For Henge Monuments						
R_Date Avebury HAR-10500	-2893	-2636	68.3	-3011	-2492	95.4
R_Date Avebury HAR-10063	-3264	-2901	68.2	-3338	-2886	95.4
R_Date Broomend of Crichie GU-15255	-4051	-3975	68.2	-4227	-3965	95.4
R_Date Broomend of Crichie GU-15253	-4225	-3992	68.3	-4230	-3981	95.4
R_Date Broomend of Crichie GU-15254	-3895	-3710	68.2	-3942	-3697	95.4
R_Date Broomend of Crichie GU-15252	-3707	-3652	68.2	-3766	-3641	95.4
R_Date Broomend of Crichie GU-15249	-2132	-1978	68.2	-2187	-1941	95.4
R_Date Broomend of Crichie GU-15250	-2031	-1940	68.2	-2130	-1891	95.4
R_Date Broomend of Crichie GU-15251	-1896	-1774	68.2	-1938	-1749	95.4
R_Date Durrington Walls Gro-901	-3500	-3107	68.2	-3627	-3028	95.4
R_Date Durrington Walls Gro-901a	-3495	-3118	68.2	-3506	-3098	95.4
R_Date Durrington Walls NPL-191	-3335	-2900	68.2	-3516	-2633	95.4
R_Date Dyffryn Lane Beta-223792	-2574	-2471	68.2	-2836	-2346	95.4
R_Date Dyffryn Lane Beta-231249	-2569	-2467	68.2	-2618	-2347	95.4
R_Date Llandegai A NPL-221	-3332	-2915	68.2	-3518	-2680	95.4
R_Date Marden BM-560	-3512	-3133	68.2	-3622	-3103	95.4
R_Date Milfield North BM-1150	-2343	-2139	68.2	-2462	-2043	95.4
R_Date Mount Pleasant BM-644	-2854	-2492	68.2	-2873	-2472	95.4
R_Date Mount Pleasant BM-792	-2840	-2478	68.2	-2873	-2466	95.4
R_Date Mount Pleasant BM-793	-2832	-2486	68.1	-2862	-2467	95.4
R_Date Thornborough (S) BETA-143015	-1729	-1536	68.1	-1750	-1511	95.4

Table 22: Less Reliable Radiocarbon Dates For Henge Monuments (RAW data).

Site	Date uncal BP	Date cal BC Sigma 1 (68%)	Date cal BC Sigma 2 (95%)
Avebury	HAR-10500 4190 ± 90BP	2893-2636	3011-2492
Avebury	HAR-10063 4380 ± 80BP	3264-2901	3338-2886
Broomend of Crichie	GU-15255 5230 ± 35BP	4051-3975	4227-3965
Broomend of Crichie	GU-15253 5260 ± 35BP	4225-3992	4230-3981
Broomend of Crichie	GU-15254 5000 ± 35BP	3895-3710	3942-3697
Broomend of Crichie	GU-15252 4910 ± 35BP	3707-3652	3766-3641
Broomend of Crichie	GU-15249 3665 ±35BP	2132-1978	2187-1941
Broomend of Crichie	GU-15250 3625 ± 35BP	2031-1940	2130-1891
Broomend of Crichie	GU-15251 3520 ± 35BP	1896-1774	1938-1749
Durrington Walls	Gro-901 4584 ± 80BP	3500-3107	3627-3028
Durrington Walls	Gro-901a 4575 ± 50BP	3495-3118	3506-3098
Durrington Walls	NPL-191 4400 ± 150BP	3335-2900	3516-2633
Dyffryn Lane	Beta-223792 4000 ± 50BP	2574-2471	2836-2346
Dyffryn Lane	Beta-231249 3980 ± 40BP	2569-2467	2618-2347

Site	Date uncal BP	Date cal BC Sigma 1 (68%)	Date cal BC Sigma 2 (95%)
Dyffryn Lane	Beta-231247 4480 ± 40BP	3332-3096	3349-3026
Dyffryn Lane	Beta-231248R 4490 ± 40BP	3335-3099	3351-3029
Dyffryn Lane	Beta-236462 4530 ± 40BP	3357-3114	3365-3097
Dyffryn Lane	Beta-231250R 4280 ± 40BP	2923-2877	3018-2762
Dyffryn Lane	Beta-231251R 4480 ± 40BP	3332-3096	3349-3026
Llandegai A	NPL-221 4420 ± 140BP	3332-2915	3518-2680
Marden	BM-560 4604 ± 59BP	3512-3133	3622-3103
Milfield North	BM-1150 3801± 62BP	2343-2139	2462-2043
Mount Pleasant	BM-644 4072 ± 73BP	2854-2492	2873-2472
Mount Pleasant	BM-792 4058 ± 71BP	2840-2478	2873-2466
Mount Pleasant	BM-793 4048 ± 54BP	2832-2486	2862-2467

Table 23: Less Reliable Radiocarbon Determinations For Henge Monuments (Calibrated Date Ranges).

Site	Lab No	Material/ Context	Reason	Relationship	Age Offset
Avebury	HAR-10500	CH (U) / Sealed Under Henge Bank.	Provides *terminus post quem* for the construction of the henge.	3	4
Avebury	HAR-10063	CH (U) / Sealed Under Henge Bank.	Provides *terminus post quem* for the construction of the henge.	3	4
Broomend of Crichie	GU-15255	CH (M) / OLS Beneath henge bank.	Provides *terminus post quem* for the construction of the henge.	3	4
Broomend of Crichie	GU-15253	CH (M) / OLS Beneath henge bank.	Provides *terminus post quem* for the construction of the henge.	3	4
Broomend of Crichie	GU-15254	CH (M) / OLS Beneath henge bank.	Provides *terminus post quem* for the construction of the henge.	3	4

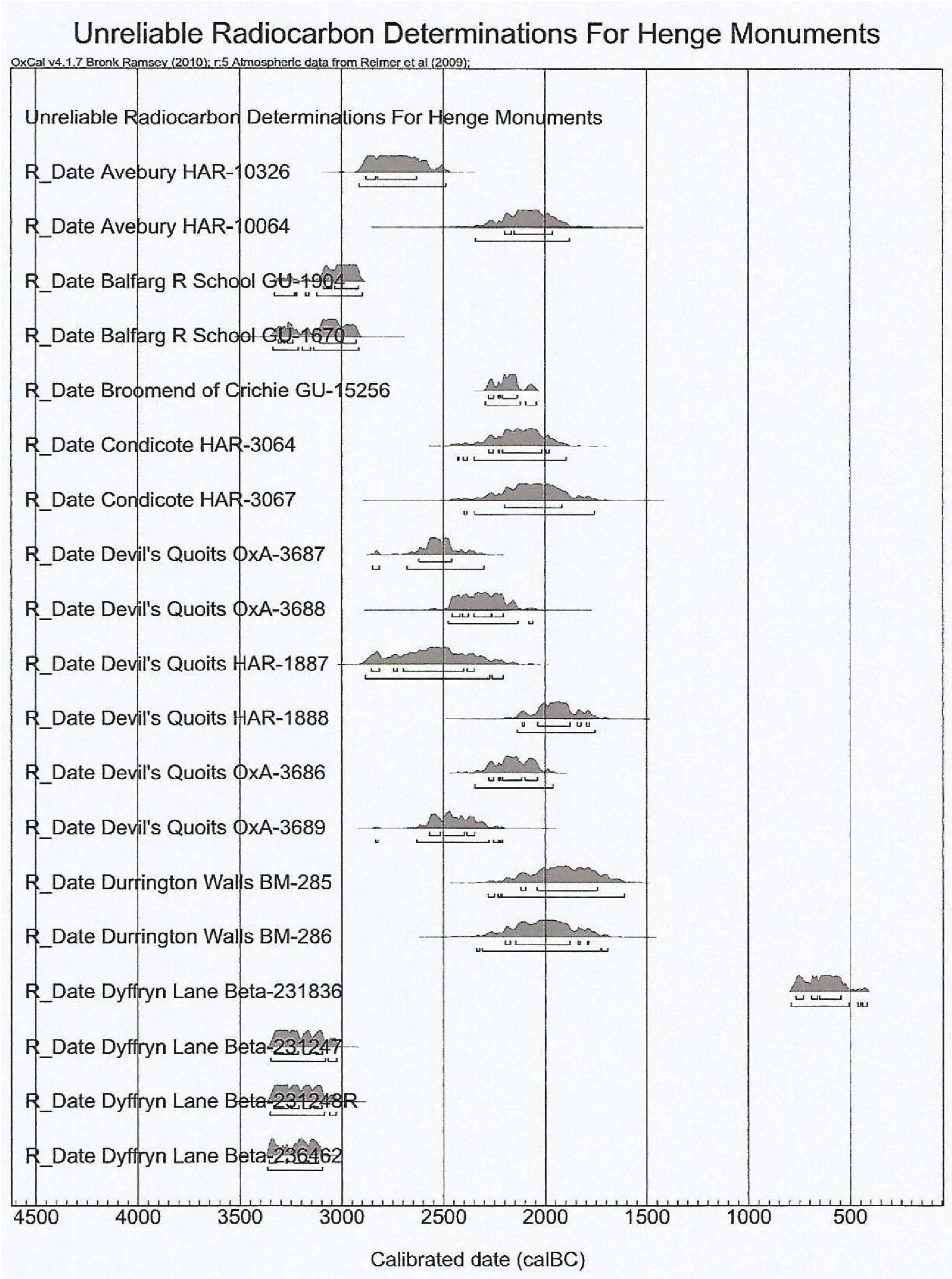
Site	Lab No	Material/ Context	Reason	Relationship	Age Offset
Broomend of Crichie	GU-15252	CH (M) / OLS Beneath henge bank.	Provides *terminus post quem* for the construction of the henge.	3	4
Broomend of Crichie	GU-15249	CH (H) / Burnt soil beneath henge bank.	Provides *terminus post quem* for the construction of the henge.	3	4
Broomend of Crichie	GU-15250	CH (H) / Burnt soil beneath henge bank.	Provides *terminus post quem* for the construction of the henge.	3	4
Broomend of Crichie	GU-15251	CH (H) / Burnt soil beneath henge bank.	Provides *terminus post quem* for the construction of the henge.	3	4
Durrington Walls	Gro-901	CH (U) / OLS beneath henge bank.	Provides *terminus post quem* for the construction of the henge.	3	4

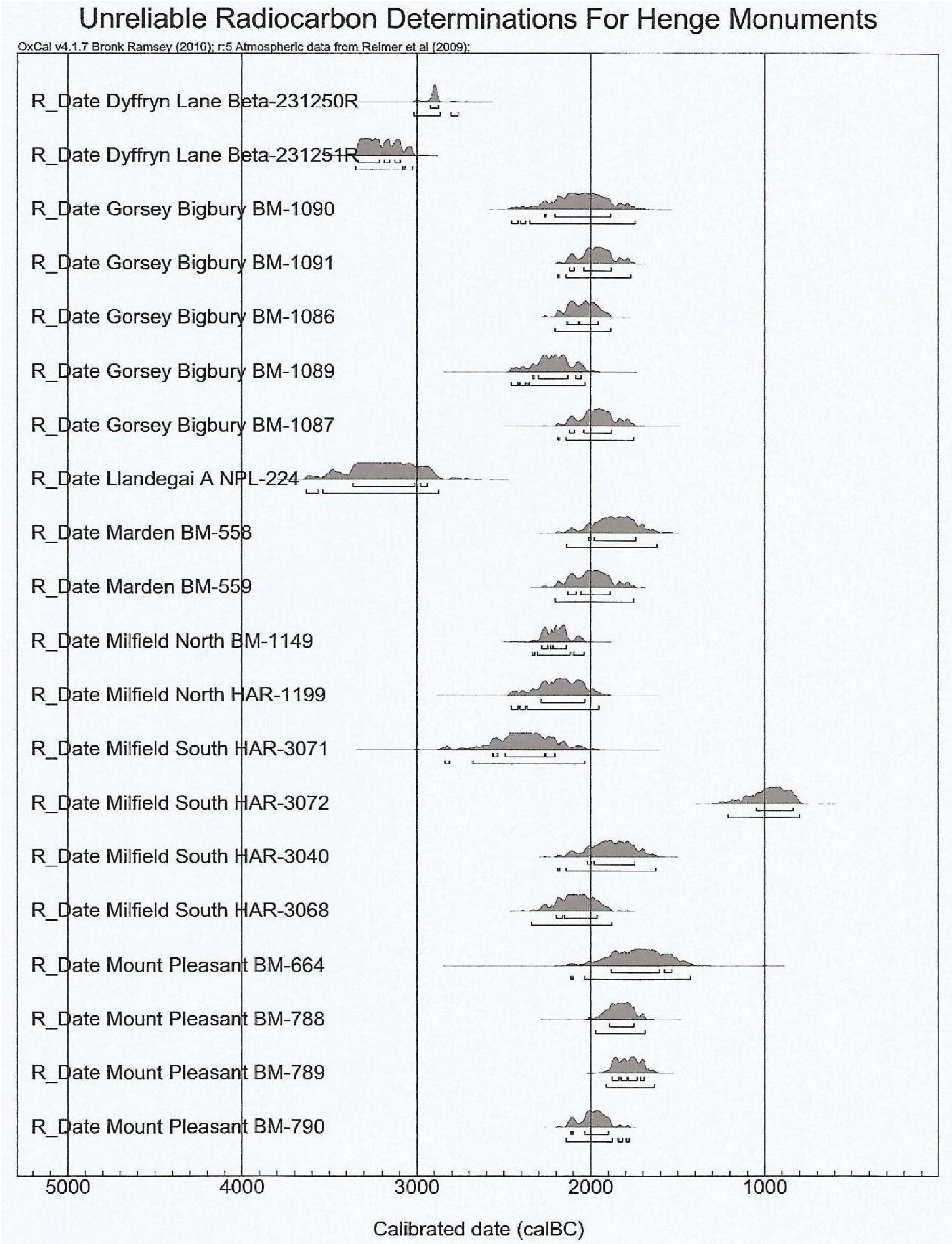
Site	Lab No	Material / Context	Reason	Relatonship	Age Offset
Durrington Walls	Gro-901a	CH (U) / OLS beneath henge bank.	Provides *terminus post quem* for the construction of the henge.	3	4
Durrington Walls	NPL-191	CH (U) / OLS beneath henge bank.	Provides *terminus post quem* for the construction of the henge.	3	4
Dyffryn Lane	Beta-223792	CH (H) / Pre henge activity.	Provides *terminus post quem* for the construction of the henge.	4	3
Dyffryn Lane	Beta-231249	CH (H) / Pre henge activity.	Provides *terminus post quem* for the construction of the henge.	4	3
Dyffryn Lane	Beta-231248R	CH (H) Pre henge activity.	From area later sealed by henge bank.	3	2
Dyffryn Lane	Beta-236462	CH (H) Pre henge activity.	From area later sealed by henge bank .	3	2

Site	Lab No	Material / Context	Reason	Relationship	Age Offset
Dyffryn Lane	Beta-231250R	CH (H) Pre henge activity.	From area later sealed by henge bank.	3	2
Dyffryn Lane	Beta-231251R	CH (H) Pre henge activity.	From area later sealed by henge bank	3	2
Dyffryn Lane	Beta-231247	CH (H) Pre henge activity.	From area later sealed by henge bank.	3	3
Llandegai A	NPL-221	CH (U) Upper Primary silts of henge ditch.	Provides *terminus ante quem* for the construction of the henge.	3	2
Marden	BM-560	CH (U) /Sealed beneath the bank of the henge.	Provides *terminus post quem* for the construction of the henge.	3	2
Milfield North	BM-1150	CH (U) / Primary fill of henge ditch.	Provides *terminus ante quem* for the Construction of the henge.	3	4

Site	Lab No	Material / Context	Reason	Relationship	Age Offset
Mount Pleasant	BM-644	CH (U) / Sealed beneath the bank of the henge.	Provides *terminus post quem* for the construction of the henge.	3	4
Mount Pleasant	BM-792	CH (U) / Primary fill of henge ditch.	Provides *terminus ante quem* for the construction of the henge.	3	4
Mount Pleasant	BM-793	CH (U) / Primary fill of henge ditch.	Provides *terminus ante quem* for the construction of the henge.	2	4

Table 24: Less Reliable Radiocarbon Determinations For Henge Monuments (Relationship/Age Offset).


Unreliable Radiocarbon Determinations For Henge Monuments
OxCal v4.1.7 Bronk Ramsey (2010); r:5 Atmospheric data from Reimer et al (2009);
Unreliable Radiocarbon Determinations For Henge Monuments
R_Date Avebury HAR-10326
R_Date Avebury HAR-10064
R_Date Balfarg R School GU-1904
R_Date Balfarg R School GU-1670
R_Date Broomend of Crichie GU-15256
R_Date Condicote HAR-3064
R_Date Condicote HAR-3067
R_Date Devil's Quoits OxA-3687
R_Date Devil's Quoits OxA-3688
R_Date Devil's Quoits HAR-1887
R_Date Devil's Quoits HAR-1888
R_Date Devil's Quoits OxA-3686
R_Date Devil's Quoits OxA-3689
R_Date Durrington Walls BM-285
R_Date Durrington Walls BM-286
R_Date Dyffryn Lane Beta-231836
R_Date Dyffryn Lane Beta-231247
R_Date Dyffryn Lane Beta-231248R
R_Date Dyffryn Lane Beta-236462
4500
4000
3500
3000
2500
2000
1500
1000
500
Calibrated date (calBC)


Unreliable Radiocarbon Determinations For Henge Monuments
OxCal v4.1.7 Bronk Ramsey (2010); r:5 Atmospheric data from Reimer et al (2009);
R_Date Dyffryn Lane Beta-231250R
R_Date Dyffryn Lane Beta-231251R
R_Date Gorsey Bigbury BM-1090
R_Date Gorsey Bigbury BM-1091
R_Date Gorsey Bigbury BM-1086
R_Date Gorsey Bigbury BM-1089
R_Date Gorsey Bigbury BM-1087
R_Date Llandegai A NPL-224
R_Date Marden BM-558
R_Date Marden BM-559
R_Date Milfield North BM-1149
R_Date Milfield North HAR-1199
R_Date Milfield South HAR-3071
R_Date Milfield South HAR-3072
R_Date Milfield South HAR-3040
R_Date Milfield South HAR-3068
R_Date Mount Pleasant BM-664
R_Date Mount Pleasant BM-788
R_Date Mount Pleasant BM-789
R_Date Mount Pleasant BM-790
5000
4000
3000
2000
1000
Calibrated date (calBC)

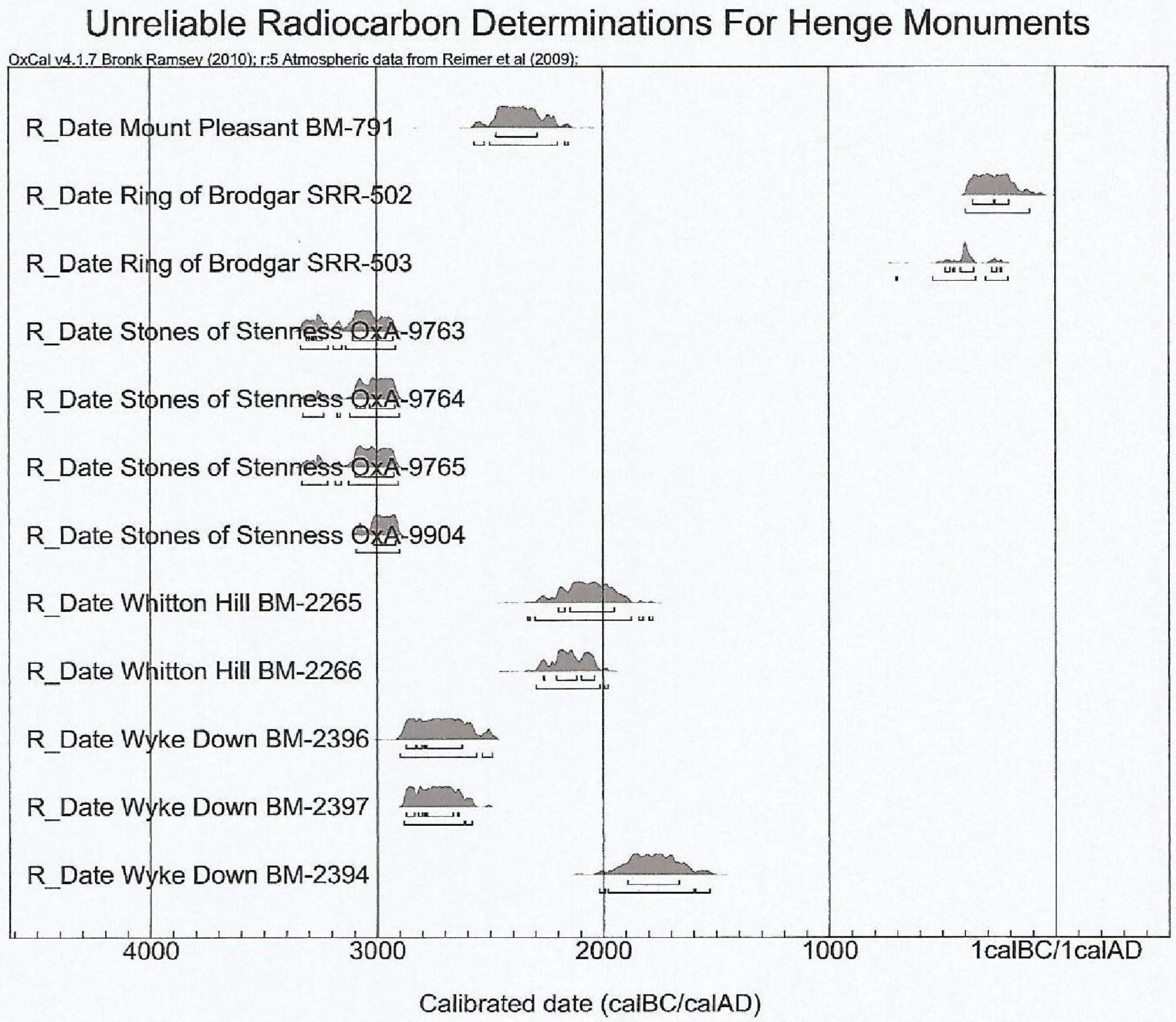


Table 25: Unreliable Radiocarbon Dates For Henge Monuments.

Name	Unmodelled (BC/AD)					
	from	to	%	from	to	%
Unreliable Radiocarbon Determinations For Henge Monuments						
R_Date Avebury HAR-10326	-2879	-2631	68.2	-2915	-2488	95.4
R_Date Avebury HAR-10064	-2198	-1964	68.2	-2341	-1880	95.4
R_Date Balfarg R School GU-1904	-3090	-2917	68.2	-3327	-2896	95.5
R_Date Balfarg R School GU-1670	-3310	-2928	68.1	-3335	-2916	95.4
R_Date Broomend of Crichie GU-15256	-2278	-2136	68.2	-2292	-2041	95.4
R_Date Condicote HAR-3064	-2276	-1980	68.2	-2431	-1896	95.5
R_Date Condicote HAR-3067	-2200	-1919	68.2	-2396	-1756	95.4
R_Date Devil's Quoits OxA-3687	-2620	-2459	68.2	-2847	-2299	95.4
R_Date Devil's Quoits OxA-3688	-2456	-2206	68.2	-2476	-2061	95.4
R_Date Devil's Quoits HAR-1887	-2852	-2347	68.2	-2882	-2206	95.4
R_Date Devil's Quoits HAR-1888	-2112	-1783	68.2	-2137	-1753	95.4
R_Date Devil's Quoits OxA-3686	-2277	-2038	68.2	-2345	-1962	95.4
R_Date Devil's Quoits OxA-3689	-2570	-2346	68.2	-2831	-2209	95.4
R_Date Durrington Walls BM-285	-2120	-1742	68.2	-2281	-1610	95.4
R_Date Durrington Walls BM-286	-2195	-1786	68.3	-2337	-1692	95.4
R_Date Dyffryn Lane Beta-231836	-767	-544	68.2	-791	-418	95.4
R_Date Dyffryn Lane Beta-231247	-3332	-3096	68.3	-3349	-3026	95.4
R_Date Dyffryn Lane Beta-231248R	-3335	-3099	68.2	-3351	-3029	95.4

R_Date Dyffryn Lane Beta-236462	-3357	-3114	68.2	-3365	-3097	95.4
R_Date Dyffryn Lane Beta-231250R	-2923	-2877	68.2	-3018	-2762	95.4
R_Date Dyffryn Lane Beta-231251R	-3332	-3096	68.3	-3349	-3026	95.4
R_Date Gorsey Bigbury BM-1090	-2267	-1887	68.2	-2456	-1746	95.4
R_Date Gorsey Bigbury BM-1091	-2121	-1883	68.2	-2189	-1770	95.4
R_Date Gorsey Bigbury BM-1086	-2135	-1956	68.2	-2205	-1886	95.4
R_Date Gorsey Bigbury BM-1089	-2333	-2056	68.2	-2457	-2034	95.3
R_Date Gorsey Bigbury BM-1087	-2122	-1881	68.2	-2189	-1755	95.4
R_Date Llandegai A NPL-224	-3361	-2940	68.2	-3632	-2876	95.4
R_Date Marden BM-558	-2012	-1740	68.2	-2138	-1619	95.4
R_Date Marden BM-559	-2132	-1890	68.2	-2205	-1754	95.4
R_Date Milfield North BM-1149	-2281	-2139	68.2	-2336	-2040	95.5
R_Date Milfield North HAR-1199	-2286	-2035	68.2	-2457	-1953	95.4
R_Date Milfield South HAR-3071	-2562	-2206	68.2	-2840	-2035	95.4
R_Date Milfield South HAR-3072	-1046	-834	68.2	-1211	-800	95.4
R_Date Milfield South HAR-3040	-2019	-1746	68.2	-2191	-1627	95.4
R_Date Milfield South HAR-3068	-2198	-1964	68.2	-2341	-1880	95.4
R_Date Mount Pleasant BM-664	-1883	-1536	68.2	-2113	-1427	95.4
R_Date Mount Pleasant BM-788	-1893	-1752	68.2	-1973	-1690	95.4
R_Date Mount Pleasant BM-789	-1878	-1694	68.3	-1911	-1636	95.4
R_Date Mount Pleasant BM-790	-2112	-1899	68.2	-2141	-1781	95.4
R_Date Mount Pleasant BM-791	-2470	-2288	68.2	-2567	-2151	95.4
R_Date Ring of Brodgar SRR-502	-362	-203	68.2	-395	-111	95.4

R_Date Ring of Brodgar SRR-503	-485	-236	68.2	-702	-209	95.3
R_Date Stones of Stenness OxA-9763	-3310	-2928	68.1	-3335	-2916	95.4
R_Date Stones of Stenness OxA-9764	-3089	-2920	68.2	-3325	-2901	95.3
R_Date Stones of Stenness OxA-9765	-3095	-2924	68.2	-3330	-2907	95.4
R_Date Stones of Stenness OxA-9904	-3016	-2916	68.2	-3091	-2900	95.4
R_Date Whitton Hill BM-2265	-2196	-1951	68.2	-2334	-1782	95.4
R_Date Whitton Hill BM-2266	-2265	-2039	68.2	-2295	-1980	95.4
R_Date Wyke Down BM-2396	-2872	-2626	68.2	-2898	-2492	95.4
R_Date Wyke Down BM-2397	-2872	-2638	68.2	-2881	-2581	95.4
R_Date Wyke Down BM-2394	-1894	-1666	68.2	-2019	-1531	95.5

Table 26: Unreliable Radiocarbon Dates For Henge Monuments (RAW data).

Site	Date uncal BP	Date cal BC Sigma 1(68%)	Date cal BC Sigma 2 (95%)
Avebury	HAR-10326 4160 ± 90BP	2879-2631	2915-2488
Avebury	HAR-10064 3690 ± 80BP	2198-1964	2341-1880
Balfarg R School	GU-1904 4385 ± 55BP	3090-2197	3327-2896
Balfarg R School	GU-1670 4425 ± 50BP	3310-2928	3335-2916
Broomend of Crichie	GU-15256 3765 ± 35BP	2278-2136	2292-2041
Condicote	HAR-3064 3720±80BP	2276-1980	2431-1896
Condicote	HAR-3067 3670±100BP	2200-1919	2396-1756
Devil's Quoits	OxA-3687 3995 ± 60BP	2620-2459	2847-2299
Devil's Quoits	OxA-3688 3845 ± 65BP	2277-2038	2345-1962
Devil's Quoits	HAR-1887 4010 ± 120BP	2852-2347	2882-2206
Devil's Quoits	HAR-1888 3590 ± 70BP	2112-1783	2137-1753

Site	Date Uncal BP	Date cal BC Sigma 1(68%)	Date cal BC Sigma 2 (95%)
Devil's Quoits	OxA-3686 3745 ± 60BP	2277-2038	2345-1962
Devil's Quoits	OxA-3689 3955 ± 65BP	2570-2346	2831-2209
Durrington Walls	BM-285 3560±120BP	2120-1742	2281-1610
Durrington Walls	BM-286 3630±110BP	2195-1786	2337-1692
Dyffryn Lane	Beta-231836 2500 ± 40BP	767-544	791-481
Gorsey Bigbury	BM-1090 3666 ± 117BP	2267-1887	2456-1746
Gorsey Bigbury	BM-1091 3606 ± 67BP	2121-1883	2189-1770
Gorsey Bigbury	BM-1086 3663 ± 61BP	2135-1956	2205-1886
Gorsey Bigbury	BM-1089 3782 ± 62BP	2333-2056	2457-2034
Gorsey Bigbury	BM-1087 3602 ± 71BP	2122-1881	2189-1755
Llandegai A	NPL-224 4480±145BP	3361-2940	3632-2876
Marden	BM-558 3526 ± 99BP	2012-1740	2138-1619

Site	Date uncal BP	Date cal BC Sigma 1(68%)	Date cal BC Sigma 2 (95%)
Marden	BM-559 3626 ± 81BP	2132-1890	2205-1754
Milfield North	BM-1149 3774 ± 39BP	2281-2139	2336-2040
Milfield North	HAR-1199 3750 ± 80BP	2286-2035	2457-1953
Milfield South	HAR-3071 3900 ± 110BP	2562-2206	2840-2035
Milfield South	HAR-3072 2790 ± 90BP	1046-834	1211-800
Milfield South	HAR-3040 3540 ±100BP	2019-1746	2191-1627
Milfield South	HAR-3068 3690 ± 80BP	2198-1964	2341-1880
Mount Pleasant	BM-664 3410 ±131BP	1883-1536	2113-1427
Mount Pleasant	BM-788 3506 ± 55BP	1893-1752	1973-1690
Mount Pleasant	BM-789 3459 ± 53BP	1878-1694	1911-1636
Mount Pleasant	BM-790 3619 ± 55BP	2112-1899	2141-1781

Site	Date uncal BP	Date cal BC Sigma 1(68%)	Date cal BC Sigma 2 (95%)
Mount Pleasant	BM-791 3891 ± 66BP	2470-2288	2567-2151
Ring of Brodgar	SRR-502 2205 ± 60BP	362-203	395-111
Ring of Brodgar	SRR-503 2325 ± 45BP	485-236	702-209
Stones of Stenness	OxA-9763 4425 ± 50BP	3310-2928	3335-2916
Stones of Stenness	OxA-9764 4390 ± 50BP	3089-2920	3325-2901
Stones of Stenness	OxA-9765 4405 ± 50BP	3095-2924	3330-2907
Stones of Stenness	OxA-9904 4360 ± 40BP	3016-2916	3091-2900
Whitton Hill	BM-2265 3680 ± 80BP	2196-1951	2334-1782
Whitton Hill	BM-2266 3740 ± 50BP	2265-2039	2295-1980
Wyke Down	BM-2396 4140 ± 80BP	2872-2626	2898-2492
Wyke Down	BM-2397 4150 ± 50BP	2872-2638	2881-2581
Wyke Down	BM-2394 3460 ± 90BP	1894-1666	2019-1531

Table 27: Unreliable Radiocarbon Determinations For Henge Monuments (Calibrated Date Ranges).

Site	Lab No	Material / Context	Reason	Relationship	Age Offset
Avebury	HAR-10326	(A) / Within bank	Sample likely to have been present in old land surface prior to construction of henge.	5	3
Avebury	HAR-10064	CH (U) / Dwarf burial	Unknown duration between the construction of the henge and the silting of the ditch to this level.	5	3
Balfarg R S	GU-1904	CH (M) / Ditch	Mixed charcoal sample, bulk sample of deposit from upper fill of ditch.	5	4
Balfarg R S	GU-1670	CH (H) / Ditch upper fill.	Sample taken from secondary ditch fill.	5	4

Site	Lab No	Material / Context	Reason	Relationship	Age Offset
Broomend	GU-5256	CH (U) / entrance post-hole	Unknown relationship between post and initial construction of the henge.	5	4
Condicote	HAR-3064	CH (O) / Ditch upper fill.	Unknown duration between the construction of the henge and the silting of the ditch to this level.	5	4
Condicote	HAR-3067	CH (O) / Ditch upper fill.	Unknown duration between the construction of the henge and the silting of the ditch to this level.	5	4
Devil's Quoits	OxA-3687	AB / Secondary silts of henge ditch	Unknown duration between the construction of the henge and the silting of the ditch to this level.	5	3
Devil's Quoits	OxA-3688	AB / Secondary silts of henge ditch	Unknown duration between the construction of the henge and the silting of the ditch to this level.	5	3

Site	Lab No	Material / Context	Reason	Relationship	Age Offset
Devil's Quoits	HAR-1887	AB & A from primary silts of henge ditch.	Combined sample from several layers Of ditch silt.	5	4
Dyffryn Lane	Beta-231836	CH (E) Upper ditch fill	Sample from secondary silt of henge ditch.	5	3
Gorsey Bigbury	BM-1090	AB / Secondary silt of henge ditch.	Unknown duration between the henges initial Construction and the silting of ditch to this level.	5	3
Gorsey Bigbury	BM-1091	AB / Secondary silt of henge ditch.	Unknown duration between the henges initial Construction and the silting of ditch to this level.	5	3
Gorsey Bigbury	BM-1086	CH / (U) Secondary silt Of henge ditch.	Unknown duration between the henges initial Construction and the silting of ditch to this level.	5	4

Site	Lab No	Material / Context	Reason	Relationship	Age Offset
Gorsey Bigbury	BM-1087	CH / (U) Hearth located In secondary ditch silt.	Unknown duration between the henges initial construction and the silting of ditch to this level.	5	4
Gorsey Bigbury	BM-1089	CH / (U) Hearth located On entrance causeway.	Unknown relationship between the initial construction of the henge and the hearth.	5	3
Llandegai A	NPL-224	Cremation/ Wooden box outside henge entrance	Unknown whether cremation is related to the construction of the henge.	5	3
Marden	BM558	A / Primary fill of Ditch.	It is widely accepted that this sample has Been contaminated.	5	3
Marden	BM559	A / Primary fill of Ditch.	It is widely accepted that this sample has Been contaminated.	5	3

Site	Lab No	Material / Context	Reason	Relationship	Age Offset
Milfield North	BM-1149	CH (U) / Upper fill of henge ditch.	Unknown duration between the construction Of timber circle the henge and the silting of the ditch to this level.	5	4
Milfield North	HAR-1199	CH (U) / Pit inside henge.	Unable to substantiate what relationship this feature has with the construction of the henge.	5	4
Milfield South	HAR-3071	CH / Internal pit. henge.	Unable to substantiate what relationship this feature has with the construction of the henge.	5	4
Milfield South	HAR-3072	CH (U) / Pit 1 inside henge.	Unable to substantiate what relationship this feature has with the construction of the henge.	5	4

Site	Lab No	Material / Context	Reason	Relationship	Age Offset
Milfield South	HAR-3040	CH (U) / Internal pit. henge.	Unable to substantiate what relationship this feature has with the construction of the henge.	5	4
Milfield South	HAR-3068	CH (U) / Internal pit. henge.	Unable to substantiate what relationship this feature has with the construction of the henge.	5	4
Mount Pleasant	BM-664	CH (U) / Ditch upper fill.	Unknown duration between the construction of the henge and the silting of the ditch to this level.	5	4
Mount Pleasant	BM-788	CH (U) / Ditch upper fill.	Unknown duration between the construction of the henge and the silting of the ditch to this level.	5	4
Mount Pleasant	BM-789	CH (U) / Ditch Upper fill.	Unknown duration between the construction of the henge and the silting of the ditch to this level.	5	4

Site	Lab No	Material / Context	Reason	Relationship	Age Offset
Mount Pleasant	BM-790	CH / Ditch Upper fill.	Unknown duration between the construction of the henge and the silting of the ditch to this level.	5	4
Mount Pleasant	BM-791	CH (U) / Ditch upper fill.	Unknown duration between the construction of the henge and the silting of the ditch to this level.	5	4
Priddy Circle 1	OxA-21939	CH (O) / Ditch upper fill.	Unknown duration between the construction of the henge and the silting of the ditch to this level.	5	4
Ring of Brodgar	SRR-502	OM / Ditch upper fill.	Poor quality sample from upper fill of henge ditch.	5	4
Ring of Brodgar	SRR-503	OM / Ditch upper fill	Poor quality sample from upper fill of henge ditch.	5	4

Site	Lab No	Material / Context	Reason	Relationship	Age Offset
Stones of Stenness	OxA-9763	AB / Upper fill of henge ditch.	Unknown duration between the construction of the henge and the silting of the ditch to this level.	5	3
Stones of Stenness	OxA-9764	AB / Upper fill of henge ditch.	Unknown duration between the construction of the henge and the silting of the ditch to this level.	5	3
Stones of Stenness	OxA-9765	AB / Upper fill of henge ditch.	Unknown duration between the construction of the henge and the silting of the ditch to this level.	5	3
Stones of Stenness	OxA-9904	AB / Upper fill of henge ditch.	Unknown duration between the construction of the henge and the silting of the ditch to this level.	5	3

Site	Lab No	Material / Context	Reason	Relationship	Age Offset
Wyke Down	BM-2396	CH (O) /Recut of pit I	Dates recut of pit not initial construction of henge.	5	3
Wyke Down	BM-2397	CH (M) / Recut of pit K.	Dates recut of pit not initial construction. of henge	5	3
Wyke Down	BM-2394	AB / Central Pit.	Unknown duration between creation of henge and the excavation of the central pit may not be a contemporary event.	5	3
Whitton Hill	BM-2266	BT / Upper fill of ditch.	Unknown duration of time between the excavation of the henge ditch and the deposition of this material.	4	4
Whitton Hill	BM-2265	BT / Upper fill of ditch.	Unknown duration of time between the excavation of the henge ditch and the deposition of this material.	4	4

Table 28: Unreliable Radiocarbon Determinations For Henge Monuments (Relationship/Age Offset).

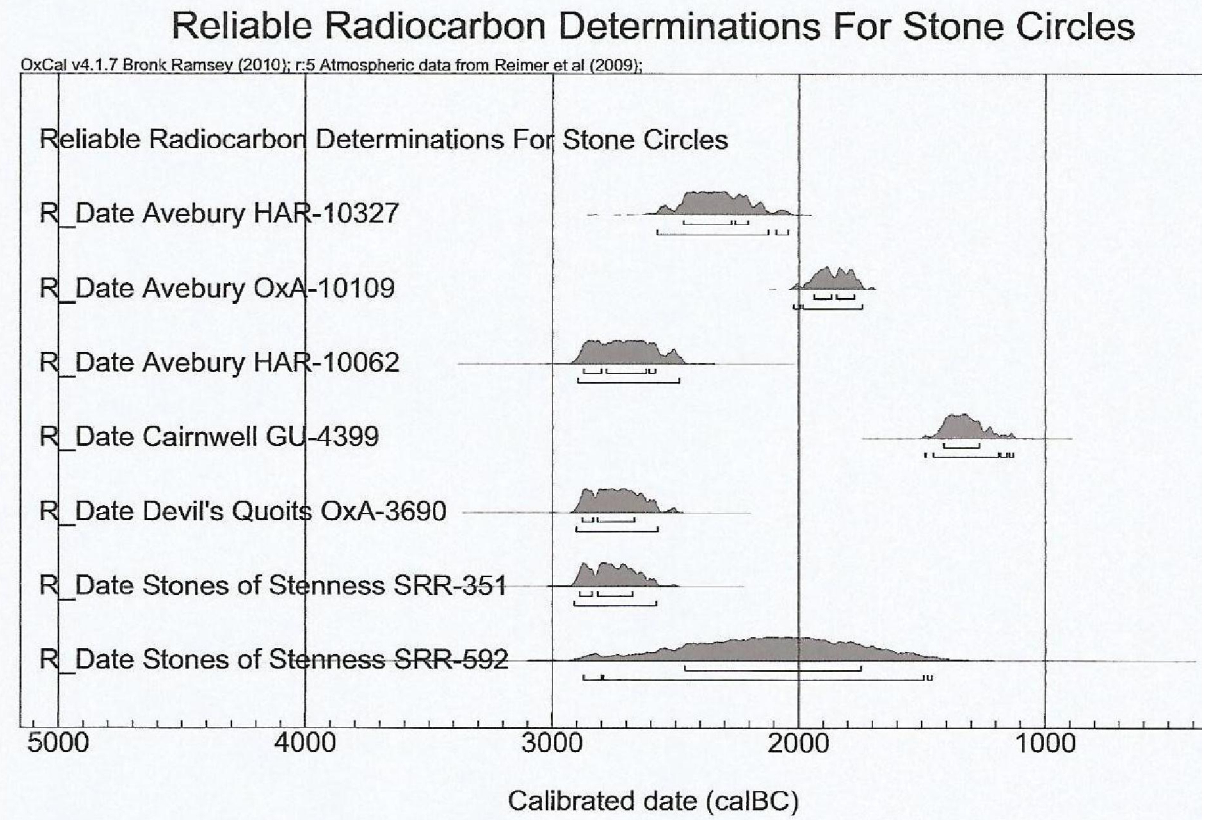


Table 29: Reliable Radiocarbon Dates For Stone Circles.

Name	Unmodelled (BC/AD)					
	from	to	%	from	to	%
Reliable Radiocarbon Determinations For Stone Circles						
R_Date Avebury HAR-10327	-2468	-2207	68.2	-2576	-2043	95.4
R_Date Avebury OxA-10109	-1939	-1775	68.2	-2021	-1741	95.4
R_Date Avebury HAR-10062	-2871	-2584	68.1	-2896	-2485	95.4
R_Date Cairnwell GU-4399	-1412	-1268	68.2	-1489	-1130	95.4
R_Date Devil's Quoits OxA-3690	-2878	-2667	68.2	-2902	-2573	95.4
R_Date Stones of Stenness SRR-351	-2889	-2674	68.2	-2910	-2578	95.4
R_Date Stones of Stenness SRR-592	-2464	-1747	68.2	-2872	-1460	95.4

Table 30: Reliable Radiocarbon Dates For Stone Circles (RAW data).

Site	Date uncal BP	Date cal BC Sigma 1 (68%)	Date cal BC Sigma 2 (95%)
Avebury	HAR-10327 3870±90BP	2468-2207	2576-2043
Avebury	OxA-10109 3535±50BP	1939-1775	2021-1741
Avebury	HAR-10062 4130±90BP	2871-2584	2896-2485
Cairnwell	GU-4399 3070 ± 60BP	1412-1268	1489-1130
Devil’s Quoits	OxA-3690 4165 ± 70BP	2878-2667	2902-2573
Stones of Stenness	SRR-351 4188 ± 70BP	2889-2674	2910-2578
Stones of Stenness	SRR-592 3680 ± 270BP	2464-1747	2872-1460

Table 31: Reliable Radiocarbon Determinations For Stone Circles (Calibrated Date Ranges)

Site	Lab No	Material/Context	Reason	Relationship	Age Offset
Avebury	HAR-10327	(AB) / Stone-hole 44	Provides *terminus post quem* for the erection of the outer stone circle.	2	1
Avebury	OxA-10109	(SF) / Stone-hole 41	Provides *terminus post quem* for the erection of the outer stone circle.	2	1
Avebury	HAR-10062	CH / (U) Stone-hole 41	Provides *terminus post quem* for the erection of the outer stone circle.	2	2
Cairnwell	GU-4399	CH (U) / Pre-enclosure. burning.	Provides *terminus post quem* for the erection of the outer stone circle.	2	2
Devil's Quoits	OxA-3690	CH (O) Stone Hole.	Provides *terminus post quem* for the erection of the stone circle.	2	2

Site	Lab No	Material/Context	Reason	Relationship	Age Offset
Stones of Stenness	SRR-351	CH (U) / Red area beneath central stone setting.	Provides *terminus post quem* for the construction of the central stone setting.	2	2
Stones of Stenness	SRR-592	HB / Below central stone Setting.	Provides *terminus post quem* for the construction of the central stone setting.	1	3

Table 32: Reliable Radiocarbon Determinations For Stone Circles (Relationship/Age Offset).

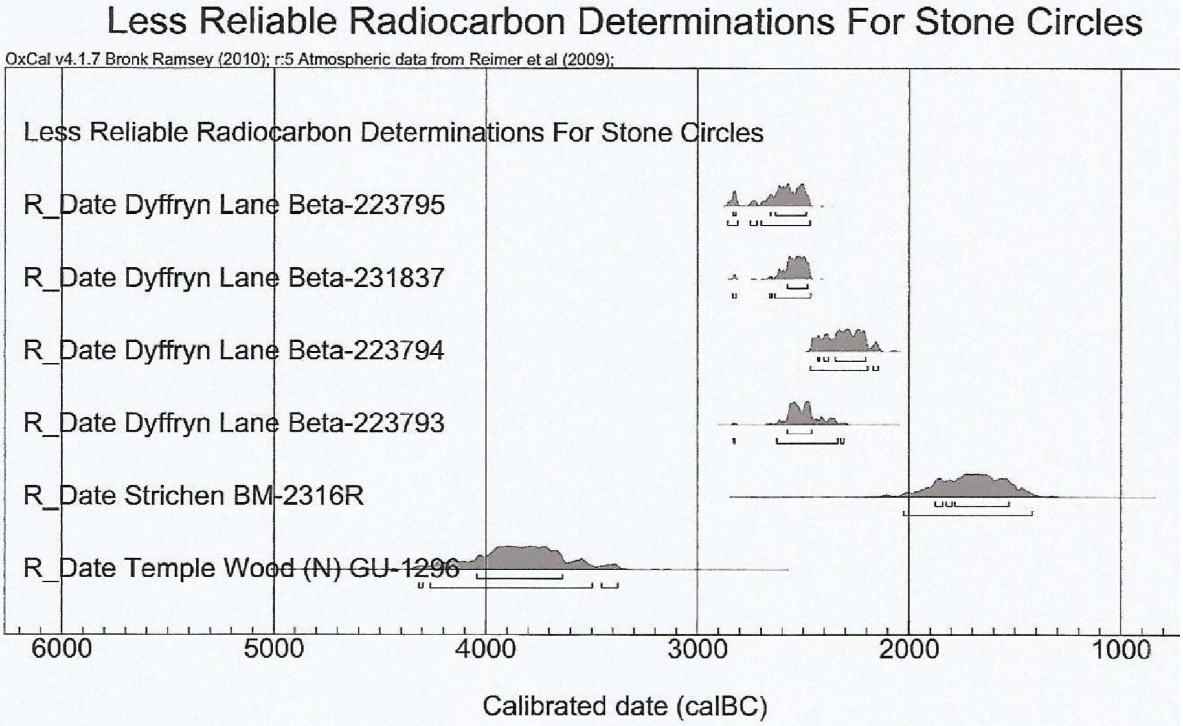


Table 33: Less Reliable Radiocarbon Dates For Stone Circles.

Name	Unmodelled (BC/AD)					
	from	to	%	from	to	%
Less Reliable Radiocarbon Determinations For Stone Circles						
R_Date Dyffryn Lane Beta-223795	-2832	-2488	68.3	-2859	-2469	95.4
R_Date Dyffryn Lane Beta-231837	-2576	-2482	68.2	-2833	-2466	95.4
R_Date Dyffryn Lane Beta-223794	-2432	-2205	68.2	-2465	-2146	95.4
R_Date Dyffryn Lane Beta-223793	-2576	-2461	68.2	-2828	-2308	95.5
R_Date Strichen BM-2316R	-1877	-1529	68.2	-2026	-1419	95.4
R_Date Temple Wood (N) GU-1296	-4042	-3637	68.2	-4316	-3377	95.4

Table 34: Less Reliable Radiocarbon Dates For Stone Circles (RAW data).

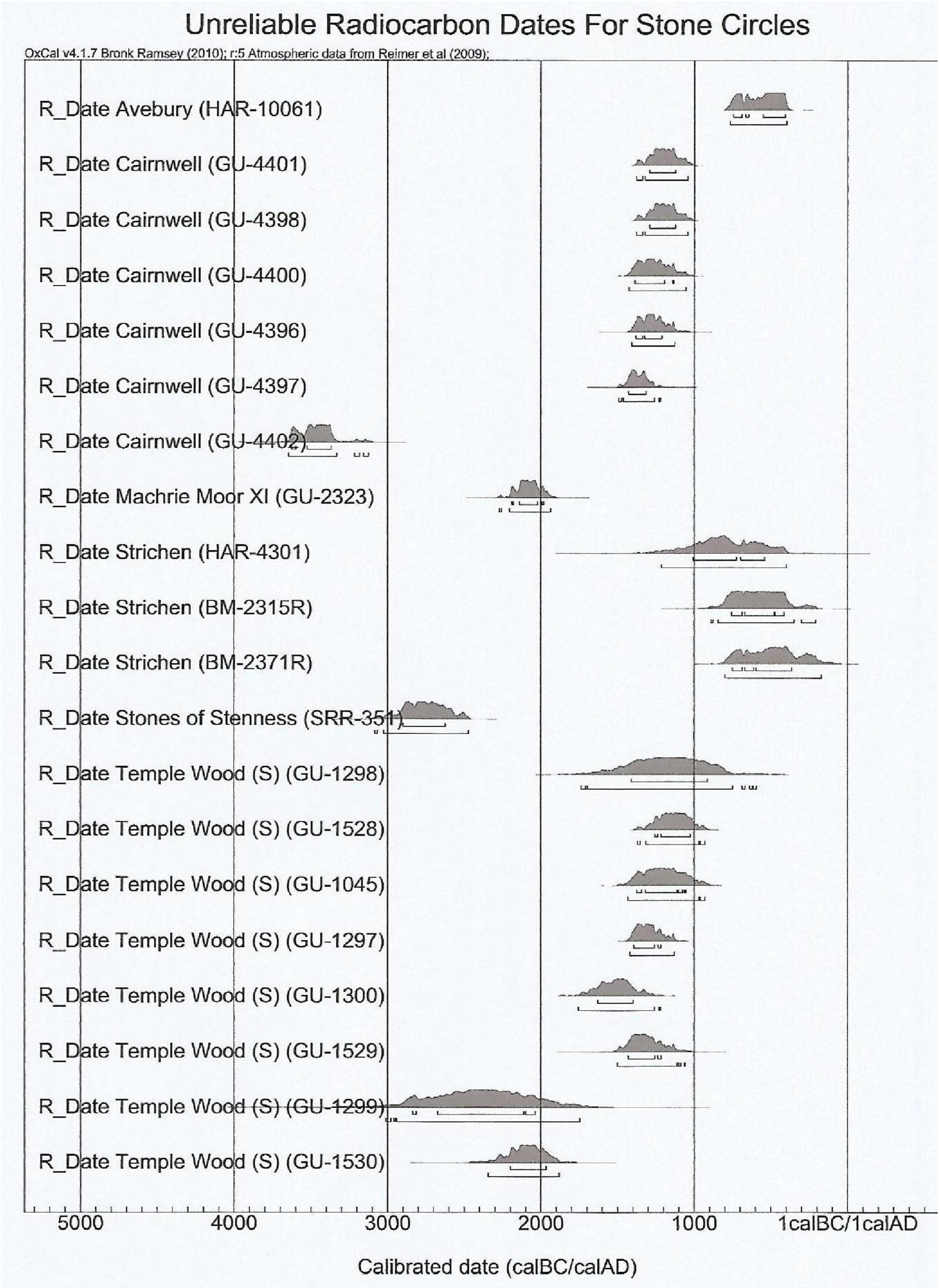
Site	Date uncal BP	Date cal BC Sigma 1 (68%)	Date cal BC Sigma 2 (95%)
Dyffryn Lane	Beta-223795 4050 ± 50BP	2832-2488	2859-2469
Dyffryn Lane	Beta-231837 4020 ± 40BP	2576-2482	2833-2466
Dyffryn Lane	Beta-223794 3840 ± 50BP	2432-2205	2465-2146
Dyffryn Lane	Beta-223793 3980 ± 50BP	2576-2461	2828-2308
Strichen	BM-2316R 3390 ± 130BP	1877-1529	2026-1419
Temple Wood North	GU-1296 5025 ±190BP	4042-3637	4316-3377

Table 35: Less Reliable Radiocarbon Determinations For Stone Circles (Calibrated Date Ranges)

Site	Lab No	Material / Context	Reason	Relationship	Age Offset
Dyffryn Lane	Beta-223795	CH (H) / Soil over Stone –hole.	Provides *terminus ante quem* for the construction of the stone circle.	4	2
Dyffryn Lane	Beta-231837	CH (M) / Soil over Stone –hole.	Provides *terminus ante quem* for the construction of the stone circle.	4	3
Dyffryn Lane	Beta-223794	CH (B) Soil over Stone –hole.	Provides *terminus ante quem* for the construction of the stone circle.	4	2
Dyffryn Lane	Beta-223793	CH (H) Soil over Stone –hole.	Provides *terminus ante quem* for the construction of the stone circle.	4	2
Strichen	BM-2316R	CH (A) Base of pit dug into rubble bank.	Provides *terminus ante quem* for the construction of the stone circle.	4	2

Site	Lab No	Material / Context	Reason	Relationship	Age Offset
Temple Wood North	GU-1296	CH (O) / Stone -hole.	Provides *terminus post* quem for the erection of the stone circle.	4	3

Table 36: Less Reliable Radiocarbon Determinations For Stone Circles (Relationship/Age Offset).


Unreliable Radiocarbon Dates For Stone Circles
OxCal v4.1.7 Bronk Ramsey (2010); r:5 Atmospheric data from Reimer et al (2009);
R_Date Avebury (HAR-10061)
R_Date Cairnwell (GU-4401)
R_Date Cairnwell (GU-4398)
R_Date Cairnwell (GU-4400)
R_Date Cairnwell (GU-4396)
R_Date Cairnwell (GU-4397)
R_Date Cairnwell (GU-4402)
R_Date Machrie Moor XI (GU-2323)
R_Date Strichen (HAR-4301)
R_Date Strichen (BM-2315R)
R_Date Strichen (BM-2371R)
R_Date Stones of Stenness (SRR-351)
R_Date Temple Wood (S) (GU-1298)
R_Date Temple Wood (S) (GU-1528)
R_Date Temple Wood (S) (GU-1045)
R_Date Temple Wood (S) (GU-1297)
R_Date Temple Wood (S) (GU-1300)
R_Date Temple Wood (S) (GU-1529)
R_Date Temple Wood (S) (GU-1299)
R_Date Temple Wood (S) (GU-1530)
5000
4000
3000
2000
1000
1calBC/1calAD
Calibrated date (calBC/calAD)

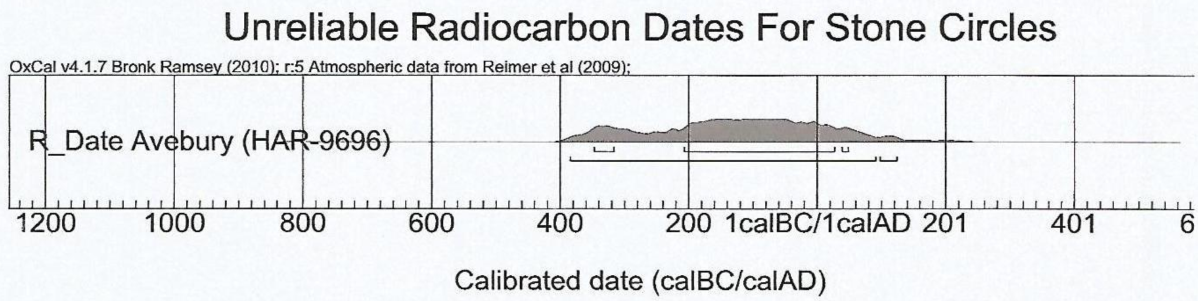


Table 37: Unreliable Radiocarbon Determinations For Stone Circles.

Name	Unmodelled (BC/AD)					
	from	to	%	from	to	%
R_Date Avebury (HAR-10061)	-746	-405	68.3	-766	-397	95.4
R_Date Cairnwell (GU-4401)	-1293	-1122	68.2	-1378	-1041	95.4
R_Date Cairnwell (GU-4398)	-1293	-1122	68.2	-1378	-1041	95.4
R_Date Cairnwell (GU-4400)	-1388	-1134	68.2	-1426	-1054	95.4
R_Date Cairnwell (GU-4396)	-1381	-1211	68.2	-1410	-1126	95.4
R_Date Cairnwell (GU-4397)	-1429	-1313	68.2	-1494	-1220	95.4
R_Date Cairnwell (GU-4402)	-3626	-3368	68.2	-3646	-3125	95.5
R_Date Machrie Moor XI (GU-2323)	-2190	-1982	68.2	-2271	-1937	95.4
R_Date Strichen (HAR-4301)	-1008	-541	68.2	-1212	-399	95.4
R_Date Strichen (BM-2315R)	-756	-414	68.2	-891	-210	95.4
R_Date Strichen (BM-2371R)	-753	-364	68.1	-800	-172	95.4
R_Date Stones of Stenness (SRR-351)	-2901	-2623	68.2	-3083	-2474	95.4
R_Date Temple Wood (S) (GU-1298)	-1411	-915	68.2	-1738	-594	95.4
R_Date Temple Wood (S) (GU-1528)	-1256	-1024	68.2	-1370	-931	95.4
R_Date Temple Wood (S) (GU-1045)	-1374	-1056	68.1	-1433	-932	95.4
R_Date Temple Wood (S) (GU-1297)	-1394	-1217	68.2	-1421	-1129	95.4
R_Date Temple Wood (S) (GU-1300)	-1631	-1400	68.2	-1755	-1220	95.4
R_Date Temple Wood (S) (GU-1529)	-1431	-1215	68.2	-1503	-1058	95.4
R_Date Temple Wood (S) (GU-1299)	-2837	-2037	68.2	-3011	-1746	95.5
R_Date Temple Wood (S) (GU-1530)	-2200	-1966	68.2	-2345	-1881	95.4
R_Date Avebury (HAR-9696)	-348	49	68.2	-385	125	95.4

Table 38: Unreliable Radiocarbon Dates For Stone Circles (RAW data).

Site	Date uncalBP	Date cal BC Sigma 1 (68%)	Date cal BC Sigma 2 (95%)
Avebury	HAR-9696 2080 ±110BP	348BC-49AD	385BC-125AD
Avebury	HAR-10061 2430 ± 70BP	746-405	766-397
Cairnwell	GU-4401 2970 ± 50BP	1293-1122	1378-1041
Cairnwell	GU-4398 2970 ± 50BP	1293-1122	1378-1041
Cairnwell	GU-4400 3020 ±70BP	1388-1134	1426-1054
Cairnwell	GU-4396 3020 ±50BP	1381-1211	1410-1126
Cairnwell	GU-4397 3100 ±50BP	1429-1313	1494-1220
Cairnwell	GU-4402 4680 ±80BP	3626-3368	3646-3125
Machrie Moor XI	GU-2323 3690 ± 50BP	2190-1982	2271-1937
Strichen	HAR-4301 2650 ± 160BP	1008-541	1212-399
Strichen	BM-2315R 2460 ± 130BP	756-414	891-210
Strichen	BM-2371R 2370 ± 130BP	753-364	800-172
Stones of Stenness	SRR-351 4190 ± 110BP	2901-2623	3083-2474
Temple Wood South	GU-1298 2945 ± 215BP	1411-915	1738-594

Site	Date uncalBP	Date cal BC Sigma 1 (68%)	Date cal BC Sigma 2 (95%)
Temple Wood South	GU-1528 2925 ± 65BP	1256-1024	1370-931
Temple Wood South	GU-1045 2980 ± 100BP	1374-1056	1433-932
Temple Wood South	GU-1297 3040 ± 55BP	1394-1217	1421-1129
Temple Wood South	GU-1300 3225 ±105BP	1631-1400	1755-1220
Temple Wood South	GU-1529 3070 ± 80BP	1431-1215	1503-1058
Temple Wood South	GU-1299 3900 ±230BP	2837-2037	3011-1746
Temple Wood South	GU-1530 3695 ± 80BP	2200-1966	2345-1881

Table 39: Unreliable Radiocarbon Determinations For Stone Circles (Calibrated Date Ranges)

Site	Lab No	Material/Context	Reason	Relationship	Age Offset
Avebury	HAR-9696	CH (U) / Stone-hole Outer ring.	Date is much later than would be expected.	5	4
Avebury	HAR-10061	CH (U) / Stake-holes edge of stone-hole.	Unknown relationship with the construction of the stone circle.	5	4
Cairnwell	GU-4401	CH (U) / Pit sealed under ring cairn.	Unknown duration of time between the construction of the stone circle and that of the ring cairn.	5	4
Cairnwell	GU-4398	CH (U) / from pit sealed by the ring cairn.	Unknown duration of time between the construction of the stone circle and that of the ring cairn.	5	4

Site	Lab No	Material/Context	Reason	Relationship	Age Offset
Cairnwell	GU-4400	CH (U) / Trench in centre Of the monument.	Unknown duration of time between the excavation of this feature and the construction of the stone circle.	5	4
Cairnwell	GU-4396	CH (U) / Pit sealed by ring cairn.	Unknown duration of time between the excavation of this Feature and the construction of the stone circle.	5	4
Cairnwell	GU-4397	CH (U) / Pit sealed by ring cairn.	Unknown duration of time between the construction of the ring cairn and that of the stone circle.	5	4
Cairnwell	GU-4402	CH (U) / Pit outside stone circle.	The relationship between the pit and the stone circle is unknown.	5	3

Site	Lab No	Material/Context	Reason	Relationship	Age Offset
Machrie Moor I	GU-2322	OS / Sealing stake-hole.	Provides *terminus post quem* for the construction of stone circle.	4	4
Machrie Moor IX	GU-2323	CH (O) / Deposit cut by stone-hole.	Provides *terminus post quem* for the construction of stone circle.	4	4
Stones of Stenness	SRR-351	CH (U) & CB / Beneath central setting.	Unclear relationship between this sample and the stone circle.	5	4
Strichen	HAR-4301	CH (M) Base of pit dug Into rubble bank.	Provides *terminus ante quem* for the construction of the stone circle.	5	4
Strichen	BM-2315R	CH (A) / Roundhouse.	Sample provides a *terminus ante quem* for the abandonment of the stone circle.	5	4

Site	Lab No	Material/Context	Reason	Relationship	Age Offset
Strichen	BM-2317R	CH (A) / Roundhouse.	Sample provides a *terminus ante quem* for The abandonment of the stone circle.	5	4
Temple Wood South.	GU-1298	CH (O) / Stone-hole.	Date relates to secondary burial activity.	5	4
Temple Wood South	GU-1527	CH (M) / Unsealed OLS.	The deposit is not sealed by a constructed feature, therefore only dates the charcoal.	5	4
Temple Wood South	GU-1528	CH (O) / Unsealed OLS.	The deposit is not sealed by a constructed feature therefore only dates the charcoal.	5	4
Temple Wood South	GU-1045	CH (U) / Sealed by the cist capping stone.	The cist is likely to postdate the stone circle by a considerable amount of time.	5	4

Site	Lab No	Material/Context	Reason	Relationship	Age Offset
Temple Wood South	GU-1297	CH (O) / Sealed by the cist capping stone.	The cist is likely to postdate the stone circle by a considerable amount of time.	5	4
Temple Wood South	GU-1300	CH (O) / Sealed by the cist capping stone.	The cist is likely to postdate the stone circle by a considerable amount of time.	5	4
Temple Wood South	GU-1299	CH (M) / Sealed by the the cist capping stone.	The cremation is likely to postdate the stone circle by a considerable amount of time.	5	4
Temple Wood South	GU-1530	CH (M) / Sealed by the surrounding bank.	The dated sample is unrelated to the initial construction or occupation of the site.	5	4

Table 40: Unreliable Radiocarbon Determinations For Stone Circles (Relationship / Age Offset).

Appendix III

Site Catalogue.

List of Sites.

1. Arbor Low
2. Arminghall
3. Avebury
4. Balfarg
5. Balfarg Riding School
6. Bleasdale
7. Broomend of Crichie
8. Bull Ring
9. Cairnpapple Hill
10. Cairnwell
11. Condicote
12. Coneybury Hill
13. Croft Moraig
14. Devil's Quoits
15. Dorchester Site II
16. Dorchester Site III
17. Durrington Walls
18. Dyffryn Lane
19. Gorsey Bigbury
20. Llandegai site A
21. Machrie Moor I
22. Machrie Moor XI
23. Marden
24. Maumbury Rings
25. Milfield North
26. Milfield South
27. Moncrieffe
28. Mount Pleasant
29. North Mains
30. Oakham
31. Priddy Circles I
32. Ring of Brodgar
33. Sanctuary
34. Sarn-y-bryn-caled
35. Stones of Stenness
36. Street House
37. Strichen
38. Thornborough North
39. Thornborough Central
40. Thornborough South
41. Temple Wood North
42. Temple Wood South
43. Whitton Hill
44. Woodhenge
45. Wyke Down

Name **<u>Arbor Low, Derbyshire.</u>**

NGR SK1603 6355.

Description Class II henge monument that encloses a recumbent stone circle of what was believed to originally contain *circa* 43 stones. Within the recumbent stone circle, just off centre, lay seven stones set in a possible cove arrangement that in turn enclose two large stones that face the two henge entrances.

Dimensions **<u>Henge</u>;** Internal diameter 46-52m, ditch 7-9m wide and 1.5-3m deep, bank survives to 1.5m in height 8m wide, NW causeway 9.15m wide, SSE causeway 6.1m wide. **<u>Stone Cove</u>;** 6 stones, 3-4m from side to side, largest stone 2.7m in height. **<u>Stone Circle</u>;** *Circa* 41 or 43 stones, 37-42m in diameter.

Finds. Flint and stone implements from early ditch silts including scrapers, a barbed and tanged arrowhead and one leaf shaped arrowhead. Fragments of flint from the excavated inner area.

Sequence **Recumbent Stone Circle - Class II Henge & Central Cove.**

C14 Dates None.

Excavations Gray 1903; sections through ditch and bank and excavation of both the northern and southwest ditch terminals. Sections also excavated around the cove and one of the recumbent stone circles.

References Gray 1903, Atkinson 1951, Radley 1968, Barnett 1978.

Discussion

The primary structure at the site of Arbor Low consisted of the placement of an egg shaped oval of *circa* 39-42 large stones. These stones were not placed in stone holes but rather were put in a series of shallow pits on the natural ground surface. This may have been as a consequence of the fact that the hard rock surface limited the ability of those placing the stones to excavate beyond a certain depth. The alignment between the recumbent stone circle and the encircling henge suggest that the earthen monument was a later addition to this site. This is due to the reality that the henge ditch does not follow the outline of the stone circle with any degree of conformity. As a result it seems likely that the henge was merely built to enclose a pre-existing area of significance.

Arguably had the reverse been the case then the stones would have tracked the inner lip of the henge ditch more satisfactorily. Such a theory is confirmed by the fact that the inner stone cove (which contained the remains of funerary activity) is positioned within the centre of the henge and is equidistant between the two entrances. While this central feature is also enclosed by the much larger recumbent stone circle it is positioned off centre towards the south-east, a misalignment that arguably would have been overcome had these two structures been contemporary. It therefore seems likely that the earlier stone circle site was reoccupied and altered at a later date by the construction of a henge monument and accompanying central burial. Unfortunately like most circle henge sites there is a distinct lack of datable evidence that may or may not have been able to substantiate this theory.

Name **Arminghall, Norfolk.**

NGR TG239060.

Description Class IA henge monument with SW facing entrance enclosing a horseshoe of 8 large posts, open to the SW, set in postholes with adjoining substantial post ramps facing to the south.

Dimensions **Henge;** internal diameter 25-27m, inner ditch 7.5-9.5m wide, 2.3m deep below modern surface, causeway 2.6m wide, bank 0.25 m high, inner berm 1.1m, outer berm 0.8m, outer ditch 3.6m wide, 1.4m below modern surface. **Timber horseshoe;** 13m wide, postholes 0.3m wide, 2.4m deep.

Finds Beaker sherds from below sterile primary silting on inner ditch, large quantity of Early Iron Age and Romano-British wares from secondary ditch fills.

Sequence **Timber horseshoe - Henge.**

C14 Dates 4440 ± 150 BP (BM-129), oak charcoal from the inner growth rings of a tree *circa* 120 years old at time of felling recovered from the base of posthole 7.

Excavations Clark 1935.

References Clark 1936. Barker & Mackey 1963. Gibson 2005.

Discussion. (**See Case Study Nº 1 for full discussion).**

Name **<u>Avebury, Wiltshire.</u>**

NGR SU130700.

Description Large Wessex henge, consisting of a flat bottomed ditch that was cut in irregular sections surrounded by a large outer bank and broken by four entrances (one of which SSE entrance is joined to the Beckhampton Avenue). A circle of 98 large stones stand within the henge, which in turn encircle two further stone circles each of which has its own central feature. The inner two circles oppose each other and are sited slightly off centre towards the east of the enclosed area. This currently visible henge is believed to cover a pre-existing but smaller ditch and bank.

Dimensions **<u>Henge</u>;** internal diameter, 347m, ditch, 21m wide at upper edge 2.5-5m wide at the bottom, depth 7-10m. Bank, 30m wide surviving to a height of 5.5m. **<u>Orientation</u>;** Two opposing entrances NNW-SSE and NNE-SSW. **<u>Outer</u> <u>Stone Circle</u>;** 329m in diameter, **<u>Inner circle (S)</u>** 103m, **<u>Inner circle (N)</u>** 97.5m.

Finds Early, Middle and Late Neolithic pottery from beneath the henge bank. Early and Middle Neolithic pottery from the three sets of stone holes with sherds of Beaker coming from the packing of several stones.

Sequence **Inner Stone Circles (N) & (S) - Avebury I - Avebury II & Outer Stone Circle.**

C14 Dates **<u>Henge</u>;** (OxA-12555) 4036 ± 34BP, (OxA-12556) 4043 ± 34BP, (OxA12557) 4038 ± 34BP, (HAR-10502) 4300 ± 90BP samples of antler from the base of the henge ditch. (HAR-10500) 4190 ± 90BP, (HAR-10063) 4380 ± 80BP fragments of charcoal found sealed under henge bank, provides terminus ante quem for Avebury II.(HAR-10325) 4640 ± 70BP, fragment of animal bone found sealed beneath henge bank provides *terminus post quem* for Avebury II. (HAR-10326) 4160 ± 90BP fragment of antler from the old land surface found within the bank upcast material. (HAR-10064) 3690 ± 80BP, fragments of charcoal from the Dwarf burial. **<u>Stone Circles</u>:** (HAR-10327) 3870±90BP, animal bone from stone-hole 44Provides *terminus post quem* for the erection of the outer stone circle.(OxA10109) 3535±50BP, Skull & (HAR-10062) 4130±90BP charcoal from stone-hole 41provides *terminus post quem* for the erection of the outer stone circle. (HAR-10061) 2430 ± 70BP, charcoal from stake-holes close to inner stone circles. (HAR-9696) 2080 ±110BP, charcoal from stone-hole 41 of the outer stone circle, provides *terminus post quem* for the erection of the outer stone circle.

Excavations Gray 1908-1914, 1922; sections through ditch and bank, southern causeway, stone (E) of the northern stone circle. Keiller 1937-1939; several stone-holes of the outer and southern stone circle. Sections though the SSE entrance and the central area. Piggott 1960; sections in the Northern entrance. Evans & Pitts
1982; Sections through the bank in the north-west sector.

References Gray 1935. Clark 1936. Smith 1965. Burl 1979, Burl 2000. Pitts 2000. Pollard & Cleal 2004. Gillings & Pollard 2004.

Discussion (**See Case Study Nº 2 for full discussion).**

Name **<u>Balfarg, Glenrothes.</u>**

NGR NO2819 0312

Description Class I Henge monument that has two non-axial entrances in its ditch and bank circuit and whose centre was severely eroded. At the centre of the henge a series of 6 concentric timber circles (one with a porch arrangement) and two later concentric stone circles could still be identified. Two stones that stood outside the concentric stone rings remained standing *in situ* inside the NW entrance.

Dimensions **<u>Henge</u>;** 65m in diameter, ditch 8m wide, 2.5m deep, berm 2m wide, bank 10m wide. **<u>Orientation:</u>** South-west facing entrance. **<u>Timber Circle A</u>;** 15 posts, 25m diameter. Due to the impact of erosion upon the post-holes of the other 5 timber circles the number of posts that made up each circle is uncertain, however their diameters can be ascertained. Circle B – 47.6m, Circle C – 15m, Circle D – 41.7m, Circle E –50 and circle F – 71.4m.

Finds Large quantities of Grooved Ware from several vessels recovered from the fill of several post-holes associated with timber circle A and a bowl-shaped pit located within the henge. Caution should be taken with regards to this material as it was largely found within the back-fill of the post-holes and thus could be residual material relating to earlier features.

Sequence **Timber Circle A and portal arrangement ring C - Circles B, D, E & F in unknown order - Class I Henge - Stone Circles 1&2.**

C14 Dates 4180 ± 50BP (GU-1160) Alder charcoal with Grooved Ware from the base of the back-filling of post-hole A7 of the main timber circle. (GU-1161) 4035 ± 50 BP also alder charcoal with no ceramic associations from post-hole A11. 4270 ± 60 BP (GU-1162) and 4315 ± 60 BP (GU-1163) Oak charcoal with Grooved Ware from back-fill of post-hole A11 and of main timber circle. Only (GU-1160 and GU-1161) can be considered reliable due to the age offsets associated with (GU-1163 and GU-1160).

References Mercer 1981. Mercer *et al*. 1988.

Discussion **(See Case Study Number Nº 3 for full discussion).**

Name **Balfarg Riding School, Glenrothes.**

NGR NO 285 031.

Description Henge monument of unknown class that enclosed an area that had previously held a rectangular timber structure that is believed to have been associated with funerary practises.

Dimensions **Henge;** 38-43m in diameter, ditch 0.5 –1m deep, 2.2 – 4.5m wide.

Finds Grooved Ware from the upper primary and secondary silts of the henge ditch and the post-pipes of the replaced timbers of structure 2. Grooved Ware was also recovered from a series of pits that had been dug in and around the henge. Beaker pottery from the secondary and upper silts of the henge ditch highlighting a clear transitional phase between the two ceramic traditions.

Sequence **Early Neolithic pits containing Carinated bowls and Heavy Globular bowls, outside henge boundary - Timber Structure 1 outside henge - Timber Structure 2 – Replacement of several timbers at Timber Structure 2 - Structured deposition of Grooved**

Ware in pits within the henge and the post-holes of Timber Structure 2 – Henge – Ring Cairn built over Timber Structure 1 and several others in the vicinity of the henge.

C14 Dates 4425 ± 50BP (GU-1670) Hazel charcoal and 4385 ± 55BP (GU-1904) mixed charcoal sample of alder, birch and hazel from heavily charcoal-impregnated layer found in association with sherds of Grooved Ware from the secondary silts of the henge ditch. 4285 ± 55BP (GU-1905) Alder charcoal from postpipe in interior of timber structure, 4155 ± 70BP (GU-1906) and 4330 ± 85BP (GU-1907) mixed charcoal samples of oak and alder from post-pipes (F7044) and (F7041) of the boundary posts of timber structure 2 southern end. Several other dates from mixed charcoal samples that were recovered from the numerous pits containing sherds of Grooved Ware that had been dug both within and outside the confines of the henge.

Excavations Barclay 1982-1985.

References Barclay & Russell-White 1993.

Discussion

It has been suggested that the site of Balfarg Riding School may be one of the earliest henge monuments in Britain, as it displays many of the formative features that have been attributed to the inception of the henge phenomenon (Harding 2003, 14-19). However it is the opinion of this study that this site is not a henge monument but rather a mortuary enclosure or large scale segmented ring ditch that was reused several times over a prolonged period to the extent that its final appearance loosely resembled that of an early henge. It is clear that the earthen structure post-dated the earlier timber monuments by a considerable period of time owing to the reality that sherds of Grooved Ware were recovered from the lower fills of the ditch while the earliest such finds from the timber monuments came from the post pipes of timber structure two (Barclay & Russell-White 1993, 192). However it is less clear whether this earthen monument was constructed to enclose a pre-existing important area or whether it was built as a monument in its own right.

Name **<u>Bleasdale, Lancashire.</u>**

NGR SD577460.

Description Timber circle consisting of 11 posts with an entrance porch to the east and a central grave. The timber circle was enclosed within a penannular ring-ditch which in turn was surrounded by a palisaded enclosure with an entrance in the north-west.

Dimensions **<u>Timber circle</u>;** 11m in diameter consisting of 11 in post-holes that were between 0.6 and 0.8m in diameter and 0.6m in depth.

Finds Collared Urn found in association with the central grace.

Sequence **Timber circle - Central grave - Creation of Mound to Cover Timber circle - Palisade.**

C14 Dates 3760 ± 90BP (NPL-69) sample of wood possibly of oak from either the inner timber circle or the outer palisade or the penannular ditch. This uncertainty makes such a sample unusable especially when the reality that it was dated some 30 years after the sample was originally recovered is taken into consideration.

Excavations Varley 1933 – 1935.

References Trans Lancashire and Cheshire Antiq Soc, 18, 1900, 114-24. Radiocarbon, 7, 1965, 157. Varley 1938.

Discussion

The excavator of this site stated that all the constructed features at Bleasdale were contemporary and for convenience suggested that the site comprised of an inner structure set within an outer palisade. However it was noted during excavation that the timber circle and the central grave had been covered by an earthen mound through which the posts of the timber circle were thought to protrude. The mound had been created through the up cast material from the ditch surrounding the timber circle and as such must have been later than the erection of the timber circle and the digging of the central grave. However owing to the lack of datable materials from this site it is unknown what period of time may have elapsed between these two phases of construction.

It may have been the case that the inner timber circle, penannular ditch, grave and mound were indeed contemporary and that the palisade was erected to enclose this monument. However it may equally have been the case that the initial monument consisted of a ring of eleven posts that had horizontal timbers fixed to them. A grave was then dug in the centre of the monument and was covered beneath a low mound created from the up cast material from the penannular ditch. Contemporary to this event was the dismantling of the horizontal aspects of the timber circle which were then placed in the base of the ditch as a lining. It seems likely that the outer palisade was erected during this period of remodelling.

Name **Broomend of Crichie, Grampian.**

NGR NJ 6274 3935.

Description Small Class II henge monument that enclosed an arc of 6 stones and a series of burial deposits. An avenue of opposing standing stones was aligned towards the southern entrance that linked this site to a larger recumbent stone circle. A timber circle was found to be situated outside the southern entrance of the henge.

Dimensions **Henge;** 37m in diameter, 16m internal diameter, ditch 5.5m wide, 1.8m deep. **Orientation;** opposing north-south entrances. **Stone arc;** 11.6m in diameter consisting of 6 stones. Timber Circle: *Circa* 16 posts, circa 8-10m in diameter. **Orientation;** Entrance aligned towards the north-east.

Finds Decorated stone hammer from burial within stone circle, Cordoned urns containing cremation deposits from the holes left by the missing stones. Beakers and urns recovered from cists that lay at the far end of the avenue.

Sequence **Timber circle - Stone Arc & Avenue - Henge - Burials.**

C14 Dates **Timber Circle: (**OxA-12851) 3327 ± 27BP hazel charcoal from weathering cone of post-hole 2048. (OxA-18252) 3432 ± 30BP beech charcoal from the bottom of post-hole 2048. **Henge:** Old land surface from beneath the henge bank; mixed charcoal samples mainly of hazel (GU-15255) 5230 ± 35BP, (GU-15253) 5260 ± 35BP, (GU-15254) 5000 ± 35BP, (GU-15252) 4910 ± 35BP. Sample of mainly *calluna* *vulgaris* from burnt surface of soil from under the henge bank (GU-15249) 3665 ± 35BP, (GU-15250) 3625 ± 35BP & (GU-15251) 3520 ± 35BP. Unidentifiable sample of charcoal from the large post-hole located by northern entrance of the henge; (GU-15256) 3765 ± 35BP.

Excavations Dalrymple 1855, Area surrounding the standing stones and the burial in the centre of the henge were investigated. Bradley 2005 – 2007, site fully investigated.

References Ritchie 1919-1920. Sheridan 2008. Bradley 2011.

Discussion (**See Case Study Number No 4 for full discussion).**

Name **Bull Ring, Derbyshire.**

NGR SK0784 7823.

Description Class II henge monument that is believed to have enclosed a stone circle of unknown appearance and dimensions of which only one stone remains.

Dimensions **Henge;** Internal diameter 43-46m, Ditch 9-12.2m wide and 0.60m deep, Bank surviving to a height of 1.1m and 9.8m wide. Southern causeway, 8m wide, Berm 2m wide. **Orientation;** Opposing north and south entrances.

Finds Two sherds of Beaker from henge ditch, one from the primary silts and a second (a rim fragment) from the secondary silts. In addition several flint flakes, 2 scrapers and ox bones and teeth were recovered from the secondary ditch silts.

Sequence Unknown.

C14 Dates None.

Excavations Alcock 1949, two sections across the ditch and the bank in the SE and SW sectors. Section cut through the ditch in the NW with trenches to investigate the northern causeway, and the southern causeway/ SSW ditch terminal. Area in the SW sector probed for stone holes. Barnett 1985, large area outside the southern entrance investigated.

References Alcock 1950. Barnett 1978.

Discussion

Evidence from the site of the Bull Ring is limited owing to the restricted contemporary excavations that have taken place. Antiquarian documentation of the site in 1789 noted the presence of an inner stone circle housed within the confines of the henge monument. However it seems likely that all but one of the stones were removed as a result of the later quarrying at the site as subsequent excavations by Alcock were unable to locate any stone holes. As a consequence this study has found it impossible to determine the primacy of one monumental form over another at this site. It has proven equally as difficult to accurately date the construction of this site as the ceramic evidence recovered from the henge ditch can at best only provide a *terminus ante quem* for the excavation of the henge ditch and the erection of the subsequent bank.

Name **Cairnpapple, Torphichen.**

NGR NS 9872 7173

Description A class II henge monument that enclosed an earlier stone oval of 24 stones and a later series of cairns and burials that were encircled by a small stone circle consisting of 10 stones.

Dimensions **Henge;** 38.1-44.2m in diameter, bank 5m wide, berm 3.6m wide, ditch 3.6m wide, 0.9-1.2m into rock surface. **Orientation;** Opposing entrances open towards the North-north east and south. **Stone Circle;** 24 stones. 31.5 – 27m in diameter. **Orientation;** Open towards the south-southeast.

Finds Sherds of Neolithic plain bowls from pits within the confines of the henge. Beaker sherds from the primary silts of the henge ditch and grave by stonehole 8.

Sequence **Stone Oval – Henge & Central Cove – Later Burials**.

C14 Dates None.

Excavations Piggott, 1947-1948. The interior of the henge was completely excavated and several sections were cut through the ditch.

References Piggott 1950. Barclay 1999. Bradley 2010.

Discussion (**See Case Study Nº 4 for full discussion).**

Name **<u>Cairnwell, Aberdeenshire.</u>**

NGR NO9071 9733

Description Initially a stone circle was constructed that was surrounded by a series of pits. After a prolonged period of time a timber enclosure, with an entrance to the south, was then erected within the stone circle and five urned cremations were interred within pits located in the centre of the enclosure. Later still the timber enclosure was replaced by a stone ring-cairn.

Dimensions **<u>Stone Circle</u>;** 9m in diameter consisting of 8 stones.

Finds Grimston/Lyles Hill pottery from the pits surrounding the stone circle.

Sequence **Arc of Neolithic Pits - Stone Circle - Timber Enclosure relating to Mortuary Practises - Ring Cairn.**

C14 Dates **<u>Exterior Pits</u>;** Charcoal from external pit F211 (GU-4402) 4680±80BP **Stone Circle**: No direct dates. **<u>Pre-enclosure burning</u>;** Charcoal (GU-4399) 3070±60BP. **<u>Timber Enclosure</u>;** Charcoal from F069 3020±70BP (GU4400) provides terminus post quem for the construction of the enclosure. **<u>Cremation Pits</u>;** Charcoal from two cremation pits F027 (GU-4396) 3020±50BP and F027 2970±50BP (GU-4398). **<u>Ring Cairn</u>;** 2970±50BP (GU-4401) pit sealed under ring cairn. (GU-4397) 3100±50BP charcoal from old ground surface beneath ring cairn.

Excavations Rees 1995, site completely excavated.

References Rees 1997.

Discussion

During the Later Neolithic a series of shallow pits were dug in an arc formation and fragments of Grimston Lyles Hill Ware were placed within them. Owing to the fact that the later stone circle mirrors the alignment of the arc of pits it may be the case that, either the stone circle was constructed within a relatively short period of time after these pits were initially excavated or that these pits were still visible when the stone circle was erected. Whichever scenario is accepted it is clear that the stone circle, which consisted of only 8 stones, stood in isolation for a prolonged period of time prior to a pyre being burnt within its interior. This act fundamentally altered the focus of this site to that of a funerary monument. This change saw the placement of a number of cremations within a timber enclosure that had an entrance in its southern section. These timbers were later replaced by a stone ring cairn whose outline respected that of the earlier timber structure. The ring cairn was subsequently expanded to the extent that it incorporated the much earlier stone circle.

Name **<u>Condicote, Gloucestershire.</u>**

NGR SP 1539 2837.

Description Isolated Class IA henge monument.

Dimensions **<u>Henge</u>;** Internal diameter 103.5m, Outer ditch width 4.3-4.6m, bank, width 8.2-11m, inner ditch width 4.2m, depth of inner ditch 2.4m.

Finds Sherds of Beaker from secondary fill of henge ditch, found in association with (HAR-3064).

Sequence **Henge in isolation.**

C14 Dates 3720 ± 80BP (HAR-3064) mixed charcoal sample of hawthorn, hazel and alder in layer 9A of early secondary fill of the henge ditch, found in association with Beaker sherds. 3670 ± 100BP (HAR-3067) oak charcoal from secondary silt of henge ditch, in layers above (HAR-3064).

Excavations Saville 1977.

References Saville 1983. Radiocarbon 29, 1987.

Discussion

The fact that the excavations at Condicote were unable to detect any features other than the Class IA henge monument do not conclusively prove that this site did not contain any other constructions either within or outside its boundaries. This is due to the fact that investigations were limited small scale rescue excavations; therefore other features may have remained undiscovered. Caution should be applied to the radiocarbon determinations from this site as even though it is believed that the inner henge ditch at Condicote was subject to a period of rapid silting, after its initial excavation; the determinations are from a mixed charcoal sample in the case of (HAR-3064) while (HAR-3067) was from mature oak charcoal. Therefore it is likely that the sample of oak charcoal may possibly have been affected by the old wood problem while the mixed charcoal sample can be disregarded as it is impossible to determine the true age of a bulk sample of charcoal from different species that has been collected from various contexts.

Name **<u>Coneybury Hill, Wiltshire.</u>**

NGR SU 1343 4161

Description Class I henge monument that enclosed an earlier double timber circle that was concentric to the henge ditch.

Dimensions **<u>Henge</u>;** 32-38.5m in diameter, Ditch, 2.5m deep, 5m wide. **<u>Outer</u> <u>Timber</u> <u>Ring</u>;** 25m in diameter, inner ring circa 3m in diameter.

Finds Two sherds of Late Neolithic pottery (one sherd of Peterborough Ware and one sherd of Grooved Ware) and two sherds of Beaker ware from the primary silts of the henge ditch. Over 50 sherds of Beaker pottery, a large proportion of which was from the same vessel, from the secondary fills of the henge ditch. Sherds of Grooved Ware from the upper fills of the central pits/postholes.

Sequence **Timber circles** - **Henge.**

C14 Dates **<u>Henge</u>;** 4200 ± 110BP (OxA-1408) animal bone from the primary silts of the henge ditch, found in association with isolated sherds of Grooved Ware, Peterborough Ware and Beaker. **<u>Timber Circle</u>;** 4370 ± 90BP (OxA-1409), animal bone from the upper fill of pit 1601 which was one of the central pit/ post-holes and found in association with sherds of Grooved Ware.

Excavations Richards 1980.

References Richards 1990.

Discussion

The 1980 excavations at the site of Coneybury Hill were limited to the entrance terminals and only around a quarter of the henge interior. As a consequence the true extent and appearance of the two timber circles that were found to be situated within the confines of the class I henge monument could not be conclusively determined. It is therefore unknown whether they formed a double ring of timbers or whether they were arranged to form an outer circle that enclosed a central feature. Such a lack of data makes it difficult to formulate an acceptable chronological sequence for the constructed elements of this site. However it is of note that the outer ring of timbers appears to have been concentric to the inner lip of the henge ditch. While this does not conclusively prove the primacy of one structure over another it does enable theories that propose that the remains of the outer ring of posts was still visible when the henge ditch was excavated to appear equally as feasible as those that suggest that this alignment was caused by the possibility that the outer timber circle was added to the interior of the henge after the ditch and bank had already been formed.

The recovered dateable evidence from Coneybury Hill (both relative and absolute) is sufficient to enable the establishment of a reliable chronological sequence. For example a *terminus ante quem* for the construction of the henge is provided by (OxA-1408) *circa* 30892475BC which was a sample of animal bone from the primary silts of the henge ditch found in association sherds of Grooved Ware, Peterborough Ware and Beaker pottery. While a *terminus post quem* for the timber circle is provided by (OxA-1409) *circa* 3354-2781BC which was also from a fragment of animal bone that was found in association with sherds of Grooved Ware from the upper fill of post-hole (1601) (Richards 1990). Analysis of these two determinations clearly demonstrates that the timber circles pre-dated the construction of the class I henge monument, possibly by several centuries. Such a sequence is supported by the ceramic evidence as it was noted during excavation that the upper fills of several post-holes associated with the timber circle mainly produced sherds of Grooved Ware, which was in stark contrast to the Beaker and Grooved Ware sherds that were recovered from the primary fills of the henge ditch. This evidence suggests that the posts of the timber circle had either already rotted *in situ* or been removed prior to the excavation of the henge ditch (Richards 1990).

Name	**Croft Moraig, Perthshire.**
NGR	NN797 472.
Description	The Initial construction consisted of a timber circle that had an entrance porch facing south-east. This was later replaced by a stone circle consisting of 9 stones and two outliers to the south-east that followed a similar but not exact alignment as the initial post circle. A shallow ditched enclosure and cairn was then constructed directly over the location of the post circle that changed the alignment of the site. This

new alignment was retained by the final construction at this site, which consisted of a stone oval and accompanying rubble bank.

Dimensions **Outer Stone Circle;** 12 stones, 12m in diameter. **Orientation;** South-south-east. **Timber Circle;** 14 posts 7.9m in diameter. **Orientation;** South-southeast. **Inner Stone Circle;** 8 stones 7.9 x 6.4m in diameter forming a Breton horseshoe. **Orientation;** South-south-west.

Finds Sherds of flat rimmed ware vessels and sherds of Carinated bowl pottery from the fill of the penannular ditch associated with the timber circle.

Sequence **Timber circle – Stone circle – Central cairn/mound & Shallow ditch – Stone oval.**

C14 Dates None.

Excavations Piggott & Simpson 1965.

References Piggott & Simpson 1971. Bradley & Sheridan 2005.

Discussion **(See case study No 6 for full discussion).**

Name **Devil's Quoits, Oxfordshire**

NGR SP 411 048.

Description Class II henge monument that contained at its centre an undistinguishable layout of post-holes. Offset within the henge enclosure was a ring of 24 stones that formed a large stone circle.

Dimensions **Henge;** Internal diameter 95-108m, ditch 2.6m deep below modern surface and 9m wide, berm 8.2m wide, bank 14m wide and 0.45m high, entrance causeways both 11m wide. **Stone Circle;** 24 stones, 76m in diameter. **Postholes;** semicircle 9m across, line of posts 7m long.

Finds Beaker sherds and middle Bronze Age Bucket Urn from the secondary silts of henge ditch in north terminal of the west entrance.

Sequence **Possible early timber structure - stone circle - Henge - Stone circle.**

C14 Dates **Henge;** 3995 ± 60BP (OxA-3687), animal bone from secondary silt of the henge ditch. 3845 ± 65BP (OxA-3688) animal bone from the secondary silts of south terminal of the west entrance found stratigraphically below (OxA3687). 4010 ± 120BP (HAR-1887), combined sample of animal bone and antler fragments from primary silt of henge ditch, taken from layers K and J/K and hearth F156 from the south terminal of the east entrance. 3590 ± 70BP (HAR-1888), combined sample of bone and antler fragments from primary silt of henge ditch, taken from layers L and K/L in cuttings IIIB, VIII and X/A. 3745 ± 60BP (OxA-3686), red deer antler from layer fa in the south terminal of the west entrance, this sample was recovered from the upper secondary fill of the henge ditch. **Stone Circle;** 3955 ± 65BP (OxA-3689), antler pick from the south-west side of f17, found in association with animal bone and conglomerate fragments. 4165 ± 70BP (OxA-3690) Oak charcoal from basal fill of the socket of stone-hole f227.

Excavations Grimes 1940, Section across ditch and bank in WSW sector. Linked boxes in the centre of the site and in the NE, NW and W sectors of the outside of the interior platform. Stone-hole A investigated. Gray 1972-1973, five sections of varying width were cut through the ditch and all four ditch terminals investigate, interior of monument stripped, work continued in 1988.

References Grimes 1943-4. Barclay, Gray & Lambrick 1995. Burl 2000.

Discussion

During the excavations by Grimes *et al.* it was suggested that the uncovered structures may have all been contemporary owing to the similarities that were observed between the silting materials and patterns within the post-holes, stone-holes and the henge ditch (Grimes 19434). However it is the opinion of this study that such a theory cannot be substantiated with any degree of accuracy. Nevertheless analysis of the constructed features and datable evidence from this site does highlight a possible chronological sequence. The initial construction at the Devil's Quoits appears to have been the timber settings that are located in the centre of the henge enclosure. Analysis of the lay-out of the post-holes could not locate any true alignments; however it was possible to distinguish a possible semicircle of pits with another line of pits running through the centre.

It may have been the case that these post-holes were associated with a much more substantial setting of timbers but these may have been lost to later ploughing activity. The fact that timbers were placed in the henge entrance may suggest that even though the central setting was not associated with a timber circle it may have played an integral part in the use of the henge as a whole, thus making it and the henge contemporary. However it is impossible to prove such a theory due to the level of destruction of the post-holes. What is more certain is that the henge and stone circle are less likely to have been contemporary, this is due to the fact that the stone circle has no real alignment with the henge bank nor does it have any observable entrance that lines up with either of the henge entrances. Indeed the stone circle is placed so far off centre that in the northern sector the stones are sited in very close proximity to the henge ditch.

It is reasonable to suggest that had the henge and stone circle been contemporary constructions then these two monumental forms would have been aligned more aesthetically, maybe to the extent that the stone circle would appear concentric with the henge. The fact that the henge ditch appears to have been cleaned out on a regular basis has restricted the amount of datable evidence relating to the initial construction of the henge. Two samples (HAR-1888) *circa* 2137-1753BC and (HAR1887) *circa* 2882-2206BC were recovered from the primary silts of the henge ditch. However these dates can be regarded as unreliable due to the fact that they were both taken from mixed samples of animal bone and antler.

Therefore when they are compared to the date (OxA-3690) *circa* 2902-2573BC, a sample of oak charcoal from the basal fill of the socket of stone-hole f227, itself likely to have been effected by the old wood effect, a true chronology for the henge and stone circle is still difficult to establish (Barclay, Gray & Lambrick 1995). However if (HAR-1887) is taken as providing a reliable date for the construction of the henge then it seems likely to be largely contemporary with the stone circle. However when (OxA-3687) *circa* 2847-2299BC taken from layer G of the henge and (OxA-3689) *circa* 2831-2209BC for the antler pick from stone-hole 17 are compared these dates it suggests that the henge had silted up to the depth of layer G prior to the construction of the stone circle (Barclay, Gray & Lambrick 1995).

Name **<u>Dorchester Site II, Oxfordshire</u>**

NGR SU5965 9572.

Description Multiphase enclosure that was made up of three phases of pits and ditches that was part of the Dorchester complex and has been interpreted as being part of the henge class.

Dimensions **<u>Phase I</u>;** 9M. **<u>Phase II</u>;** 13.5m. ditch 1.5m wide. **<u>Phase III</u>;** 16.5m.

<u>Orientation</u>; Phase I: North East facing entrance.

Finds Sherds of Bronze Age pottery from several internal pits. Sherds of Peterborough Ware from the upper fills of the phase III ditches.

Sequence **Phase I - Phase II - Phase III.**

C14 Dates 4230±50BP (BM-4225N) fragment of antler from the upper primary fills of ditch section (f81).

Excavations Atkinson 1946, site fully excavated.

References Atkinson *et al*. 1951. Radiocarbon Volume 32 no1 1990.

Discussion

It is unclear, in the opinion of this study, whether this site should actually be classified as a henge. This is due to the fact that this site displays few of the architectural traits that are considered integral to the henge class. If this site is to be classified as a henge then it should be considered as atypical as the bank of all three phases was clearly sited outside the excavated ditch. However such an observation, when considered in conjunction with the radiocarbon determination from this site, may point to the prospect that the initial phases may be regarded as being a precursor to the inception of henge monuments in the same way as the principal phases at Llandegai and Stonehenge may have been.

Excavations by Atkinson in 1946 proved that the initial series of pits was never completed and instead was replaced by several much larger pits. This second phase saw the primary pits being in filled and a series of causeways replacing the defined entrance in the north-east section associated with the primary construction.

After a prolonged period of time this construction was destroyed by the excavation of a third ditch circuit that was set out from a different centre from that of the previous two circles. This circuit was also made up from a series of ditches however in this instance these ditches had a more substantial internal bank into which 19 cremations were placed. This feature enclosed a further two cremations within its centre, however it is unclear whether all of these cremations were contemporary with the encircling ditch or whether the cremations placed within the bank material were later additions.

Name	**<u>Dorchester Site III, Oxfordshire</u>**
NGR	SU587 957
Description	Small oval of 13 timbers that was sited within an earlier cursus monument.
Dimensions	**<u>Timber Circle</u>**; 13 posts, 17-20m in diameter. **<u>Orientation</u>;** Possible entrance in the north-west section.
Finds	Sherds of Grooved Ware recovered from several post-holes.
Sequence	**Cursus Monument - Timber Circle.**
C14 Dates	4050 ± 110BP (BM-2161R) 4100 ± 120BP (BM-2162R) and 4120 ± 120BP (BM-2164R)
References	Bradley & Chambers 1988. Whittle *et al*. 1992.

Discussion

Excavations at Dorchester site III proved beyond doubt that the timber circle was a later addition to the south eastern section of the cursus monument as it displayed no obvious alignment with this much grander structure. The site itself was made up of thirteen posts with one post-hole being found to contain the remains of two timbers. This site is of importance, despite its small size, as it was proven during excavation that the timbers had been charred prior to being inserted into the relevant post-holes. As a consequence the radiocarbon determinations that have been taken from samples of this charcoal are considered by this study as providing an accurate date for the initial act of erecting these timbers. This is due to the reality that the dated charcoal is directly related to the posts from which this timber circle was made.

Name <u>**Durrington Walls, Wiltshire**</u>

NGR SU150437.

Description Large Wessex (super) henge consisting of ditch and external bank separated by a berm and broken by four entrances. Two timber circles, north and south, lay within the interior which both consist of multiple phases of construction. These structures were predated by a series of Neolithic houses.

Dimensions <u>**Henge**</u>**;** internal diameter, 321 – 387m, ditch, width 12.8m – 17.6m. East entrance 22.8m wide, West entrance 30.4m wide. <u>**Timber Circles**</u>**;** South circle diameters, Phase I. Ring A – 30.04m, Ring B – 23.25m, Ring C – 14.75m, Ring D – 2.25m consisting of 6 posts. Phase II. Circle A – 38.9m, Circle B – 35.72m, Circle C 29.35m, Circle D – 22.9m, Circle E – 15.2m, Circle F – 10.75m. North Circle diameters, Phase I. Single ring 30m. Phase II. Outer Circle 14.4m consisting of 20 posts, Inner Circle 5m consisting of 4 posts.

Finds Large quantity of Grooved Ware from Phase I & II of the Southern and Northern timber circles. Middle Neolithic Wares from beneath the henge bank found on the old land surface in association with fragments of Grooved Ware. Fragments of Beaker recovered from the hearths in the upper fills of the henge ditch and Grooved Ware from the primary and secondary silts, although not as substantial as the quantities recovered from the timber circles. Possible fragment of Beaker recovered from beneath the henge bank by Farrer in 1917.

Sequence **Neolithic Houses - Continuous construction of several timber circles – Henge monument.**

C14 Dates <u>**Henge**</u>**;** 4584 ± 80BP (Gro-901) & 4575 ± 50BP (Gro-901a) repeat of (Gro-901) from the old land surface underneath the henge bank recovered during the 1951-1952 excavations. 4400 ± 150BP (NPL-191) charcoal from old land surface in the north sector founding association with sherds of Grooved Ware. 3927 ± 90BP (BM-398) charcoal from the primary silts of the henge ditch. 3927 ± 90BP (BM-398) unspecified charcoal, 3965 ± 90BP (BM-399) bone collagen and

4000 ± 90BP (BM-400) antler from the base of the henge ditch in the excavated south sector.3560 ± 120 (BM-285) Charcoal from a hearth that had been fired in the secondary silts of henge ditch, found in association with sherds of Beaker. 3630 ± 110 (BM-286) charcoal from a hearth from the secondary silts of the henge ditch that was shown to be stratigraphically later than the hearth (BM-285) was recovered from. **North Timber Circle;** 3905 ± 110BP (NPL-240) Antler pick, from post-hole 42 of phase II. **South Timber Circle;** 3760 ± 148BP (NPL-239) mixed sample of antler from phase I from post-holes 133-4, 141, 193-4. Antler from layer 8 of post-hole 9 (BM-396) 23950 ± 90BP, 3900 ± 90BP (BM-395) oak charcoal from the base of post-hole 92, 3850 ± 90BP (BM-397) from mixture of animal bones obtained from layer 8 of the packing of post-hole 92.

Excavations Farrer 1917, observations of a drain cut through the bank in the west sector. Stone *et al* 1950 – 1952 observed cutting of pipe trench along the outer edge of the bank in the SSE sector. Wainwright 1966 – 1968, Large strip cut through the enclosure varying in width from 18.2 – 39.6m as a result of impending road construction. Parker-Pearson 2003 – 2008, large-scale excavations of henge and its environs.

References Farrer 1918, Stone et al 1954, Wainwright & Longworth 1971, Parker-Pearson 2007.

Discussion **(See case study No 7 for full discussion).**

Name **Dyffryn Lane, Powys.**

NGR SJ204104

Description Stone circle consisting of 7 stones that was replaced by a Class I henge monument and covered by a small earthen mound.

Dimensions **Henge;** Internal diameter; 64m. ditch 6.5m wide, 2.1m deep below current land surface, bank, 0.3m high, 15m wide. **Orientation;** North-West facing entrance. **Stone Circle;** 7 stones, 6 remaining in situ 11m in diameter.

Finds Peterborough Ware from several pits relating to pre-henge activity sealed under the henge bank. Numerous pieces of worked flint including arrow heads from the central turf mound and the back fill of the henge ditch.

Sequence **Pre-henge activity - Stone Circle – Class I Henge – Central mound.**

C14 Dates **Pre-henge activity;** 4480±40 (Beta-231247), 4490±40 (Beta-231248R), 4530±40 (Beta-236462) hazelnut fragments from pit 11. 4280±40 (Beta231250R), hazelnut fragments from pit 36. 4480±40 (Beta-231251R) hazelnut fragments from pit 38. ***Terminus ante quem* for the construction of the stone circle;** 4050±50BP (Beta-223795) hazel twig charcoal and 4020±40BP (Beta-231837) hawthorn/rowan twig charcoal from soil overlying stoneholes of stones 18 & 19. 3840±50BP (Beta-223794) birch twig charcoal from lower and sealed section of (41) deposit of soil covering stone 20. 3980±50BP (Beta-223793) hazel twig charcoal from upper section of (41) deposit of soil covering stone 20, this date is less reliable than (Beta-223794). ***Terminus post quem* for the building of the Henge;** 4000±50BP (Beta-223792) & 3980±40BP (Beta-231249) hazel twig charcoal from hearth sealed beneath the henge bank. **Henge ditch upper fill;** 2500±40BP (Beta-231836) elm charcoal.

Excavations Lewis 1857, 2 small trenches cut around several stone holes into the interior of the site. Gibson 2006, Trenches cut through henge bank and ditch in the northeast quadrant. Trench extended through central area of henge to incorporate the stone circle and central mound.

References Lewis 1857. Harding & Lee 1987. Gibson 2010.

Discussion **(See Case Study No 8 for full discussion).**

Name **Gorsey Bigbury, Somerset.**

NGR ST 4844 5583

Description Class I henge monument that had a later cist burial placed in the bottom of the ditch in the northwest sector.

Dimensions **Henge;** 19.2-24m internal diameter, ditch 3.5m wide, 1.1-2.4m deep below rock surface, bank 2.2-4.2m wide, surviving to a current height of 0.6m, berm 2-2.5m wide.

Finds Cist burial from the bottom of the henge ditch that contained a Bell Beaker sherd a barbed and tanged arrowhead, a flint knife and five bone objects. Beaker sherd, from the primary silts of the ditch. The secondary silts contained a large quantity of Beaker sherds with over 120 vessels being represented, these were found in association with flint artefacts, animal bones, daub and charcoal.

Sequence **Henge - Cist burial.**

C14 Dates **Henge;** 3800 ± 74BP (BM-1088) charcoal from the base of the henge ditch. 3666 ± 117BP (BM-1090) & 3606 ± 67BP (BM-1091), bone collagen, from bone recovered from the bottom of the secondary silt of the henge ditch. 3663 ± 61BP (BM-1086), charcoal from the bottom of the secondary silt of the henge ditch. 3782 ± 62BP (BM-1089), charcoal from a hearth uncovered on henge entrance causeway. 3602 ± 71BP (BM-1087), charcoal from a hearth in the secondary silt of the henge ditch.

Excavations Jones 1931-1934, complete excavation of the internal platform, ditch and causeway. Sections were also cut through the bank in the SW and NNE sectors. Tratman 1965, excavation of the entrance causeway outside the henge entrance.

References Jones 1938, ApSimon *et al*. 1976.

Discussion

The fact that no internal features were found within the confines of this henge during excavation highlights the fact that timber or stone structures were not always an essential requirement of henge construction. Analysis of the ceramic finds from the henge ditch highlight that this monument had a strong currency throughout the period in which Beaker Ware was widely utilised. This is due to the fact that a Bell Beaker was found associated with the cist burial at the base of the henge ditch and an isolated Beaker sherd was found in the primary fills. In addition large quantities of Beaker Ware ceramics, consisting of several hundred sherds of numerous vessels, were recovered from the secondary silts of the henge ditch. No other ceramic forms were recovered from the henge ditch, which places its time of construction firmly within the Beaker period. Of the six radiocarbon dates associated with this site only one was recovered from the base of the henge ditch, a sample of charcoal.

Although the sample was recovered from a primary context it is reasonable to suggest that this material may have entered this deposit as a consequence of erosion from the henge ditch or in fact be wind born material. If either of these scenarios is correct then it would severely affect the reliability of the date generated by the analysis of this sample.

Name **Llandegai site A, Gwynedd**

NGR SH593 712.

Description A Typical Class IA henge monument that had an internal bank and external ditch.

Dimensions **Henge;** 75m internal diameter, ditch 9m wide. **Orientation;** west facing entrance.

Finds. Stone Axe from upcast bank material.

Sequence **Isolated Henge.**

C14 Dates **Henge;** (NPL-221) 4420±140BP unknown sample of charcoal from upper primary silts of the henge ditch. (NPL-224) 4480±145BP, charcoal from cremation inside wooden box found outside the entrance of the henge.

Excavations Houlder 1966-1967, site completely excavated.

References Houlder 1976. Lynch & Musson 2004.

Discussion

The site of Llandegai A can be considered A Typical as it possesses an internal rather than an external bank and as such it is classified as class IA monument. The isolated radiocarbon determination generated through the analysis of a sample of charcoal from the primary silts of the henge ditch places the construction of this monument within the early and formative stages as the henge phenomenon as a whole. The location of this dated material suggests that it entered this context within a relatively short period of time after the ditch was excavated. If this is considered as being accurate then it suggests that the alignment of the henge ditch and bank may not have been as integral to the overall design and idea of early henge monuments as it was to become. However caution should be applied to this date as this charcoal may have washed into the henge ditch or eroded into it after it was excavated, which may explain the early date for this monument. Such an early date is however arguably supported by similar date ranges that have been produced for other atypical henge sites such as Stonehenge I.

Name **<u>Machrie Moor I, Arran</u>**

NGR NR 9120 3239

Description Stone circle site consisting of 11 boulder type stones that was pre-dated by two earlier timber circles that consisted in the first instance of a ring of 53 timbers which enclosed a central horse shoe setting of 5 substantial posts. This arrangement was later enclosed by a ring of slighter posts and elements of the earlier circle were replaced. The abandonment of the timber circles and the construction of the stone circle were separated by a period of agriculture.

Dimensions **<u>Timber circle I</u>**; Main Ring; 53 posts 14.5m in diameter. **<u>Central horse shoe</u>**; 5 posts 5.5m long, 3.5m wide. **<u>Timber circle II;</u>** Outer ring; 34 posts, 19.5m in diameter. **<u>Stone circle;</u>** 11 stones, 14.4m in diameter.

Finds. Grimston/Lyles Hill-type pottery from a series of pits that pre-dated the monumental phase. Sherds of Grooved Ware from the central setting. Beaker pottery from features associated with the agricultural activity and stone circle.

Sequence **Timber Circle I - Timber Circle II - Agriculture - Stone Circle.**

C14 Dates **Pre monuments;** (GU-2321) 2870±50bc mixed charcoal sample of alder, birch, hazel, oak and poplar, 3550±70 be (GU-2320) charcoal of alder, birch, oak, blackthorn (hawthorn, pear or apple), 2820±90 bc (GU-2315) oak charcoal recovered from a series of pits. **<u>Timber circle I</u>;** Mixed charcoal sample of oak, hazel and alder, 4470 ± 50BP (GU-2316) from post-hole F1271, oak charcoal from F1280 gave a date of 3980 ± 180BP (GU-2325) in direct association with Grooved Ware. Timber Circle II oak charcoal from post-hole F1326 4080 ± 90BP (GU-2324). **Agriculture phase;** Carbonised oak stake (F 47i) which lay across the top of a stake hole 1890±110bc (GU-2322).

Excavations Bryce 1861. Haggarty 1985-1986, Full investigation of all features and environs.

References Haggarty 1991. Gibson 2005.

Discussion See (Case Study No 9) for full discussion.

Name **Machrie Moor XI, Arran**

NGR NR 9121 3241,

Description Stone circle site that consisted of a ring of 10 stones that was pre-dated by an earlier single timber ring that consisted of 10 posts. The abandonment of the timber circle and the construction of the stone circle were separated by a period of agriculture.

Dimensions **Timber circle;** 10 posts, 14.7m in diameter at widest point. **Stone circle;** 10 stones, 13.6m in diameter.

Finds. Grimston/Lyles Hill-type pottery from a series of pits that pre-dated the monumental phase. Sherds of Grooved Ware from the central setting. Beaker pottery from features associated with the agricultural activity and stone circle.

Sequence **Timber Circle - Agriculture - Stone Circle.**

C14 Dates **Stone circle;** 3690 ± 50BP (GU-2323) oak charcoal from a charcoal-rich feature to the north-west of stone 7 which was sealed by a layer that was cut by the stone hole for stone 7, provides a *terminus post quern* for the digging of stone 7.

Excavations Burl 1979. Haggarty 1985-1986, Full investigation of all features and environs.

References Haggarty 1991. Gibson 2005.

Discussion **(See case study No 9 for this site, due to duplication of sequence).**

Name **Marden, Wiltshire**

NGR SU091 584

Description Large henge enclosure, the majority of which is defined by a bank, internal ditch and accompanying berm the remaining circuit being completed by the River Avon in the SE section. Two known entrances break the circuit in the N and E sectors and two large barrows and a timber circle of 21 posts 10.5m in diameter located 14m from the northern entrance are enclosed within the henge.

Dimensions **Henge;** internal diameter 530 N-S by 360m E-W, ditch 2-3.5m below modern turf line, 16-18m wide, bank 13.5 16.5m wide, berm 7.5m **North causeway;** 10.5m wide between ditches and15m wide between the banks. **Timber circle;** 10.5m in diameter, 30cm – 8cm deep, 30cm – 10cm in diameter.

Finds Grooved Ware sherds from the old land surface, primary silts of henge ditch, postholes of the timber circle, beneath the henge bank and several pits.

Sequence **Timber Circle - Henge.**

C14 Dates **Henge;** 3938 ± 48BP Charcoal (BM-557), from the primary silt (layer 25) of the henge ditch. 3526 ± 99BP Animal bone (BM-558) and 3626 ± 81BP Antler (BM-559) also from primary silts of henge ditch but are thought to have been contaminated. 4604 ± 59BP (BM-560) charcoal from pre-enclosure layers beneath the henge bank.

Excavations Wainwright 1969.

References Wainwright 1971. Burleigh *et al*. 1976.

Discussion

The fact that the constructed features of this site have no observable stratigraphic relationships makes the formulation of a chronological sequence problematic. However the large scale of the henge enclosure may suggest that it was a later addition to the site after the timber circle and possibly even the two visible barrows had been constructed. For example it could be argued that the henge was built in order to enclose and thus define the boundaries of pre-existing monuments. The theory that the henge enclosed a pre-existing ritual centre is supported by the fact that Grooved Ware and other Early Neolithic ceramics, such as Windmill Hill Ware, were recovered from the old land surface and the fact that a radiocarbon date of (BM-560) *circa* 3622-3103BC from charcoal recovered from beneath the henge bank seems to suggest the site may have been used for several centuries prior to the construction of the henge. In addition the fact that the henge ditch is sited so far away from the constructions which it encloses, over 14meters in the case of the timber circle, suggests that the henge is actually defining an area that may have then attracted burial mounds prior to or post its construction. Such a chronology cannot be proven without future excavations and the recovery of datable evidence from the timber circle.

Name **<u>Maumbury Rings, Dorchester</u>**

NGR SY691899.

Description Class I henge monument whose ditch was made up of a series of 45 near vertical shafts. Aspects of the henge were later truncated by Roman and Medieval interventions.

Dimensions **<u>Henge</u>;** Internal diameter; 52m. External diameter; 101m. Ditch; 3-5m wide, 10m deep.

Finds Isolated sherd of Grooved Ware from the primary fill of one of the henge ditch shafts. Sherd of Beaker from the secondary fill of one of the henge ditch shafts.

Sequence Class I Henge - Roman Amphitheatre.

C14 Dates **<u>Henge</u>;** (BM-2282N) 3490±50BP fragment of antler pick from the base of shaft 1.

Excavations Gray 1908-1913 excavation throughout the interior of the henge monuments, plus several trenches across the henge entrance and banks.

References Bradley & Thomas 1984.

Discussion

The excavations carried out at the site of Maumbury Rings highlighted three distinct phases of activity. The initial construction consisted of a class I henge monument that was denoted by an external bank, internal ditch and a portal stone. However unlike the majority of henge monuments considered by this study the ditch at Maumbury was made up of a series of 45 deep pits with the up cast material being used to create an external bank. Within several of these pits deposits had been placed at their base consisting of artefacts such as pottery and animal bone. The make-up of the ditch may suggest that this was a relatively early construction as the ditch mirrors the much earlier method used to construct causewayed enclosures.

Due to a distinct lack of datable materials it is unclear how long this site was in use for.

However the two isolated sherds of pottery recovered from the ditch pits may provide a timeframe for the inception and occupation of this site. The sherd of Grooved Ware from the base of one pit suggests that the henge was constructed during the period in which this ceramic form was in use. When this data is considered in conjunction with the sherd of Beaker recovered from the upper fills of a separate pit is suggests that this monument was still being used during the Bronze Age. It is clear that the henge was reused during the Roman period as it was converted into an amphitheatre that utilised the bank and enclosed area of the earlier henge. The final phase saw this structure being reused for a third time as a defensive artillery fort during the civil war.

Name **Milfield North, Northumberland**

NGR NT 934 349.

Description Class II henge monument with an additional causeway in the south-western sector that enclosed a series of pits and overlaid, in some areas, an earlier timber circle.

Dimensions **Henge;** 15m in diameter, Ditch 4-5m wide 1.20-1.30m deep. **Timber Circle;** 38-50m in diameter consisting of at least 13 posts. **Circle of 30 pits;** diameter 11m.

Finds Unidentifiable sherds of Neolithic type potter and Beaker sherds from the lower fills of henge ditch. Beaker and food vessels from the central pits. Barbed and tanged arrow heads from pit VIII of the timber circle.

Sequence **Timber Circle - Henge - Internal ring of 30 pits.**

C14 Dates **Henge;** (BM-1150) 3801 ± 62BP Unspecified charcoal sample, from primary silt of ditch by South entrance. (BM-1149) 3774 ± 39BP Unspecified Charcoal, from middle silt of ditch by South entrance. Internal pit C: 3750 ± 80BP (HAR-1199), Unspecified sample of charcoal from fill of pit.

Excavations Harding 1975 & 1977.

References Harding 1981. Gibson 2007.

Discussion (See case study No 10 for full discussion).

Name **<u>Milfield South, Northumberland</u>**

NGR NT 939 335.

Description Class I henge with a large pit in the west-central area. This held at its base a sub-rectangular setting of stones and was later adapted in order for a large post to be placed above the stone setting. A series of pits that are not believed to have held posts enclosed the large timber in close proximity.

Dimensions **<u>Henge</u>;** 20 – 25m in diameter, ditch 3.5 – 5m wide, 1.45 – 2.05m deep below modern ground surface. **<u>Central pit</u>;** 3.60 x 3.20m in extent.

Finds Cup-marked stone from stone setting at the base of the large pit.

Sequence **Henge - Excavation of pit and placement of stone setting - Deposition of burnt material possibly a cremation within pit - Pit adapted to hold large post and a series of pits dug around this feature - Anglo Saxon burials.**

C14 Dates **<u>Henge</u>;** Unspecified charcoal samples 3900 ± 110BP (HAR-3071), 3540 ±100BP (HAR-3040) from the burnt material that was recovered from within the sub-rectangular stone setting at the base of the large pit. 3690 ± BP (HAR-3068) unspecified charcoal sample from layer sealed by the base of the large post within the central pit. 2790 ± 90BP (HAR-3072) unspecified charcoal sample from pit 1 that surrounded the large post-hole/pit.

Excavations Harding, 1977 – 1978.

References Harding 1981.

Discussion

The henge at Milfield South displays all the relevant criteria necessary in order to be classified as a Class I henge monument. Unlike Milfield North, the henge itself appears to have been conceived as an isolated structure; however this does not mean that it was not a part of a larger ritual complex that incorporated other monuments within its environs. Owing to a lack of datable evidence derived from the henge ditch it is impossible to determine whether its construction is contemporary with the central large pit. The location of the pit within the henge, to the west of centre, and its accompanying encircling arrangement of pits would suggest that this was unrelated to the original design of the henge. However the lack of interaction between any constructed features makes it impossible to determine which structure was the primary construction at this site.

Even when the available stratigraphic sequence that was uncovered during the excavation of this pit is taken into consideration it merely assists in the formulation of a chronology for this individual construction. It may be the case that the henge was in fact a secondary feature at this site, possibly being built to encircle the pre-existing post and pits however it is unclear how such a hypothesis could be proven while there remains no datable evidence from the henge ditch and bank. What is clear however is that the site was later utilised as an Anglo Saxon cemetery.

Name	**Moncrieffe, Perthshire**
NGR	NO 13281933
Description	Class I henge monument that had a possible hurdle-lined bank and ditch. Within the henge was a ring of nine pits that may or may not have held posts. A tenth pit was located just outside the henge entrance which contained a cremation. Later a stone circle of 8 stones with accompanying kerbed ring cairn was built within the henge. Later still this ring-cairn and associated stones was dismantled and replaced by a larger ring-cairn that was surrounded by a recumbent stone circle consisting of 8 uprights and low horizontally placed stones between four of the uprights.
Dimensions	**Henge;** diameter 9.40-10.10m, ditch, 1.4m wide, 0.75m deep, and causeway 3.6m wide. Pit circle, 9 pits, 6.5m in diameter. **Phase II stone circle;** 8 stones 8.9m in diameter. **Recumbent stone circle;** 8 stones, 9m in diameter.
Finds	Beaker sherds from the backfill of the henge ditch and in the vicinity of stone 2 of phase 3. Cordoned urns, Grooved ware and flat-rimmed ware sherds were recovered from the north-east corner of the site and are believed

to have been smashed during the metal working period attributed to phase IV. As such these cannot be used to date any aspect of the site.

Sequence **Class I henge and Pit circle - Stone circle and kerbed ring cairn - Recumbent stone circle and ring cairn - Late Bronze Age metal working.**

C14 Dates None.

Excavations Stewart 1974.

References Stewart 1985.

Discussion

It is widely agreed that the class I henge monument was the primary construction at this site. However attention should be paid to the ring of nine pits that are located concentrically within the henge. It could not be proven during excavation whether these pits had or had not ever contained posts. Nevertheless analysis of the plan of these pits within the henge interior highlights the fact that the distance between posts 1 & 9 seems to be greater than that between any other. Certainly this distance only equates to around half a meter but when this evidence is considered with the fact that pit 1 is located almost centrally within the line of the henge entrance it may suggest that the circle of pits predated the construction of the henge.

It has been suggested that physical and symbolic barriers may have been constructed within henges in order to restrict access (Gibson 2004, 72). If this theory is accepted then it is indeed reasonable to suggest that the henge and the ring of pits were in fact contemporary. However it may also have been the case that the site of Moncrieffe marks a transitional phase where by the pits were dug symbolically to remember an earlier monument type or indeed that the fashion of building a timber circle was abandoned in favour of building a henge or a stone circle before any timbers were selected to be inserted into the pits. Whatever interpretation is adopted for this phase it is important to note that the ring of pits was backfilled and the henge ditch was recut and the bank was seemingly reinforced with hurdles prior to the construction of the first stone circle.

A chronology for the later phases of construction at Moncrieffe can be more easily determined. The pits can clearly be proven to have predated a later stone circle that consisted of eight stones as the fill of pit 9 was cut by stone hole 4 of this stone circle. The stone circle unlike the pits was not concentric to the earlier henge and contained a small kerbed ring-cairn that had scattered within it smashed pieces of quartz. After an unknown interval this ringcairn and surrounding stone circle was dismantled and replaced by a larger ring-cairn and recumbent stone circle that also consisted of eight stones but measured 9m in diameter. Many of the stone-holes associated with this larger recumbent circle cut the stone-holes associated with the smaller circle such as in stone-hole II of phase III where an earlier shallower stone-hole was uncovered. The larger ring-cairn associated with phase III was later itself demolished by Late Bronze Age metal workers who completely cleared away the central cairn. Within this space they built a working area that was defined by a turf windbreak, clay-walled pits and stake-holes.

Name	**Mount Pleasant, Dorchester**
NGR	SY 710 899.
Description	Large Wessex henge with four causewayed brakes in the ditch and bank circuit, that enclosed an earlier timber circle consisting of five rings of timbers that were cardinally aligned and in turn were surrounded by a ring ditch and later superseded by a stone cove. A palisade that tracked the edge of the henge ditch and a Bronze Age barrow were later added to the interior of the henge.
Dimensions	**Henge;** 252 – 282m internal diameter, bank 16-20m wide, 1.5m high, 4m high in levels preserved beneath the **Conquer Barrow;** causeways, west 5m, north 40m, east 30m and south-east 20m wide. Berm15m wide. **Ring ditch surrounding Site IV;** 21.5m in diameter, single entrance causeway 7.5m wide. **Timber circles;** Circle A – 38m diameter, consisting of 52 posts; Circle B – 30m diameter consisting of 48 posts; Circle C – 24.6m diameter, consisting of 36 posts; Circle D – 18.3m consisting of 24 posts; Circle E – 12.5m diameter, consisting of 24 posts. **Palisade;** 270 – 245m in diameter.
Finds	Grooved Ware from the first phase of Site IV, recovered from the primary silt of the surrounding ditch. Beaker sherds from the

surrounding ditch of site IV when it was one-third full, which was associated with the digging of a central setting of pits and the insertion a series of monoliths representing a cove. Various other sherds of Bronze Age wares were recovered from the secondary silts of the ditch surrounding Site IV including, Food Vessels and Collared Vessels. Grooved Ware from stone-hole 191 of central cove of Site IV. Beaker sherds from the secondary fill of the henge ditch, west entrance south and north terminals. Grooved Ware fragments throughout the primary silts and into the secondary silts near the north entrance Beaker sherds from the lower secondary silts of the ditch terminals of the north entrance.

Sequence **Site IV including, 5 rings of timbers with a surrounding ring ditch - Henge - West entrance of henge made narrower - Conquer Barrow - Replacement of timbers at Site IV with a stone cove - Palisade - Iron Age occupation.**

C14 Dates **<u>Pre-enclosure</u>;** 4072 ± 73BP (BM-644) Spread of charcoal from the fossilised soil from beneath the henge bank. **<u>Henge</u>;** Enclosure ditch west entrance, south terminal: 3734 ± 41BP (BM-645), antler from the base of the henge ditch, 3410 ± 131BP (BM-664), unspecified charcoal sample from the bottom of the secondary silts. Enclosure ditch west entrance, North terminal: 3728 ± 59BP (BM-646) antler from the base of the henge ditch. Enclosure ditch north entrance. 4058 ± 71BP (BM-792) & (BM-793) 4048 ± 54BP unspecified charcoal samples from primary fill silt of the henge ditch, found in association with sherds of Grooved Ware. 3506 ± 55BP (BM-788), 3459 ± 53BP (BM789), 3619 ± 55BP (BM-790), 3891 ± 66BP (BM-791) unspecified charcoal samples from the secondary fill of the ditch, recovered in association with sherds of Grooved Ware and Beaker. **<u>Timber structure Site IV</u>;** 3911 ± 89BP (BM-663) unspecified charcoal sample from primary silt of ditch, 3941 ± 72BP (BM-666) & 3988 ± 84BP (BM-667) antler and fragment of animal bone from primary silt of ditch, found in association with sherds of Grooved Ware. 3630 ± 60BP (BM-668) oak charcoal from a hearth from the base of the secondary ditch silts, 3274 ± 51BP (BM-669) unspecified charcoal from hearth located at the top of the secondary silts, found in association with collared vessels and food vessels. **Palisade construction;** 3637 ± 63BP (BM662) antler pick from the packing material of the palisade trench, 3645 ± 43BP (BM-665) unspecified charcoal sample from deposit that sealed the top of the palisade trench. **Palisade trench pit;** 3956 ± 45BP (BM-794) animal bone from palisade trench backfill material, sample believed to be part of an earlier rubbish deposit that was reused to fill the trench. The Conquer Barrow: 4077 ± 52BP (BM-795) antler pick from primary rubble of ditch that was loosely associated with sherds of Beaker, the barrow is built over the henge bank and therefore all dates associated with it must post-date the construction of the henge.

Excavations Wainwright 1970-1971. Trenches in bank, ditch, ditch terminals, causeway, circular ditched enclosure and palisade.

References Wainwright 1979. Wainwright 1989. Radiocarbon 18, 1976.

Discussion

Excavations at Mount Pleasant clearly highlight that prior to the construction of monumental structures the site was initially utilised as a settlement. It is unclear at what point the first structure was erected due to possible contamination of the dated materials. The ceramic evidence recovered from Site IV and the henge ditch appears to suggest that Site IV was the initial construction. This is due to the fact that sherds of Grooved Ware were recovered from the primary silts of the ditch that surrounded this monument, with Beaker fragments not appearing until the ditch was one-third full. In comparison while Grooved Ware was recovered from the primary silts of the henge ditch and continued into the secondary silts these contexts were also found to contain fragments of Beaker.

This suggests that the henge was built at a point when the Grooved Ware tradition was beginning to be superseded by Beaker Wares. In comparison the ditch surrounding Site IV had silted up to an extent that it was one third full prior to the introduction of Beakers, which suggests that this was the primary monument on the site. Arguably if these two structures were contemporary then site IV would be a much grander construction. Indeed, it is probable that the later henge actually encloses several other timber monuments that either predate or postdate site IV. It may be the case that the large size of Mount Pleasant is a consequence of the fact that it does in fact enclose several earlier monuments. Further excavation would be required to prove such a hypothesis; however this might enable the true relationship between the henge and site IV to be established.

Site IV and the henge seem to have been abandoned a few centuries after they were constructed as a large barrow was erected over the henge bank close to the west entrance. This point clearly marks a transitional period for the usage of the henge, as the west entrance is made narrower by further excavation of the ditch, the removed material possibly being used to enhance the barrow construction. Whether this is indeed the case or not, at this point the original use of the henge and Site IV appear to have been changed. This is also confirmed by the fact that a stone cove was constructed directly on top of Site IV. The fact that stones were placed directly upon this site suggests that the timber monument or its location was still visible. This may be confirmed by the fact that a sherd of Grooved Ware was recovered from stone-hole 191 of the central cove of Site IV. The final phase of construction was the creation of a palisade that was placed along the inner lip of the henge ditch.

Name	**North Mains, Strathallan**
NGR	NN928 163
Description	Class II henge monument enclosing two earlier timber circles that consisted of 18 posts (circle B) and (circle A), that was made up of 24 posts and had accompanying post-ramps. In addition numerous burials were placed within and outside the boundaries of the henge.
Dimensions	**Henge;** internal diameter 32-35m, ditch 6-11m wide, depth 3m below modern ground surface. **Orientation;** Opposing east- west entrances. **Timber circle B;** 22.5m diameter, **Timber circle A;** 27m diameter.
Finds	Post timber circles and henge construction, burials with accompanying Food Vessels and in some instances Beakers.
Sequence	**Timber circle B - Timber circle A - Burials A - Henge - later Burials.**

C14 Dates **<u>Henge</u>;** 3665±45BP (Gra-24007) burial A sealed beneath henge bank. **<u>Timber</u> <u>circle A</u>;** 4040 ± 70BP (GU-1354); 4105 ± 60BP (GU-1353) oak charcoal from the primary packing of post-hole, charcoal from plank 4280 ± 60BP (GU-1352) and mixed charcoal samples 4015 ± 65BP (GU-1435) and 4130 ± 60BP (GU-1436) recovered from post-pipes of circle A. Several later dates from a series of pits.

Excavations Barclay 1977-1978.

References Barclay 1983, Sheridan 2002, Barclay 2005, Gibson 2005.

Discussion **(See Case Study No 11 for full discussion).**

Name **<u>Oakham, Rutland</u>**

NGR SK867 095.

Description Three phased site that initially consisted of a small oval of pits that was replaced by a larger circle that had an accompanying porch arrangement in the South-East and was on a different alignment to the phase 1 circle. This in turn was replaced by a small penannular setting. All phases were found to have been heavily plough damaged.

Dimensions **<u>Phase 1</u>;** 8 pits enclosing an elliptical area of circa 21 x 24m, pits between 1.40 & 0.45m in length and 0.25 & 0.73m in depth. Pits 8-10m apart aligned on a north-east-south-west alignment. **<u>Phase 2</u>;** 23 pits enclosing an area circa 34 x 22m. **<u>Phase 3</u>;** 7 pits enclosing an area 10x 7m.

Finds Quantity of worked flint from several contexts. Plain bowl Neolithic pottery.

Sequence **Phase 1 circle - Phase 2 circle - Phase 3 circle and central burial.**

C14 Dates **<u>Phase 1</u>;** 3565±80BP (OxA-2421) combined sample of bone fragment possibly from a goat/sheep and hazel charcoal from pit F50. **<u>Phase 3</u>;** 3390±70BP (OxA-2578) sample of human bone from the crouched inhumation that was found to lie at the centre of the ring of pits.

Excavations Clay 1986.

References Clay 1998.

Discussion

Despite significant plough damage at Oakham excavations were still able to decipher a possible chronological sequence for this site. The first phase of construction saw the excavation of a ring of 8 pits, however it is unclear whether these pits ever held posts. This ring can be dated to *circa* 2137-1694BC (OxA-2421) on account of the radiocarbon date that was generated as a result of the analysis of a mixed sample of animal bone and charcoal. However due care needs to be applied to such a date owing to the fact that this date was generated through the analysis of a combined sample of materials that may not both directly relate to the event they have been used to date (Clay 1998).

This initial ring was replaced after and unknown period of time by a larger ring of 23 pits (again which are believed to have held a series of timbers). Such a sequence can be determined through the analysis of pit (F312) of this secondary circle which was shown to cut pit (F374) of the primary ring. The findings of this study also suggest that the pits of this secondary circle should not be separated into a series of features (as suggested by Clay 1998) but rather be regarded as a complete ring that enclosed and superseded the earlier ring. The final construction (phase III) at Oakham consisted of a ring of 7 pits that enclosed a much smaller area than the previous two circles. This later ring seemingly enclosed and was directly related to a crouched burial that dated to the period *circa* 1881-1523BC (OxA-2578) and as such can be proven to post-date the earlier two circles (Clay 1998).

Name **Priddy Circle I South, Somerset**

NGR ST539 525.

Description Class I henge monument that had an internal bank and external ditch and enclosed an arrangement of eight large stones. This site was located within the environs of three other similar monuments

Dimensions **Henge;** 155m in diameter, bank; 3.5m wide surviving to a height of 0.75m. Ditch: 2m wide, 0.96m deep. Causeway; 6.5m wide berm 2m wide.

Finds Worked flint from the primary silts of the henge ditch.

Sequence **The erection of an inner and outer timber circle - The creation of a stone and turf bank between the timbers - The excavation of a**

surrounding ditch and the removal of the rings of posts - Cist surrounded by a ring of stones.

C14 Dates **Henge;** (OxA-21939) 4113±33BP and (OxA-21940) 4271±32BP oak charcoal from the upper and primary fills of the henge ditch. (OxA-22023) 6246±36BP acer charcoal from the buried soil beneath the henge bank.

Excavations Taylor 1956, section through bank and ditch in north east section and several sections through the interior. Tratman 1967, 3 sections through the bank and ditch and the entrance. Lewis & Mullen 2008, reopening of several earlier trenches.

References Taylor & Tratman 1957. Tratman 1967. Lewis & Mullen 2011.

Discussion

Priddy circle I (south) is largely unique as a number of opposing timber posts were used to create a series of barriers which were then filled with turfs and stones to create the henge bank. It seems likely that the double ring of supporting posts were removed at the same point at which the surrounding ditch was excavated with the spoil being placed upon the top of the pre-existing bank (Lewis & Mullen 2011). The discovery of such a retaining wall may be useful in explaining how other henge sites were constructed. It has been noted that at the majority of sites erosion and slippage of the bank material into the henge ditch must have been a considerable hindrance. It may be the case that at other sites such a retaining wall of timbers and stones was also used during the creation of the henge bank. As a consequence of the limited excavations it is unknown what relationship the internal stones had with the henge however it seems likely that they do not represent the remains of a stone circle but rather the remnants of a cist or later funerary structure.

Name **Ring of Brodgar, Stenness**

NGR HY2945 1335

Description Class II henge that is defined by a rock cut ditch and possible earthen bank. The henge originally enclosed a ring of 60 large stones that are situated between 5-6 meters from the edge of the henge ditch.

Dimensions **Henge;** 108 – 114m in diameter, ditch 9m wide, 3m deep. **Stone circle;** 103.5m in diameter, 2.1m high on average with some as tall as 3.8 – 4.7m high.

Finds None.

Sequence **Stone Circle - Henge.**

C14 Dates **Henge;** 2320 ± 50BP (SRR-503) and (SRR-502) 2210 ± 60BP samples of peat taken from 0.6m (SRR-503) and 0.7m (SRR-502) below the surface of the henge ditch. Both samples can be considered unrelated to the initial construction of the henge; firstly on account of the fact that the materials selected for dating can be considered unreliable and secondly as a result of the samples being located so high within the fill of the henge ditch.

Excavations Renfrew, 1973.

References Renfrew 1979.

Discussion

Even though the presence of a bank at this site has still to be proven beyond reasonable doubt the visible architectural features that can be observed such as the ditch, with opposing breaks in its circuit, suggests that The Ring of Brodgar does indeed belong to the henge class. However the sequence of construction at this site is far more difficult to classify owing to the reality that there are no dated materials relating to the stone circle and the fact that the radiocarbon dates associated with the henge come from organic mud from the upper fills of the ditch. These dates are therefore unrelated to both the initial excavation of the henge ditch and the early phases of occupation. The contextual evidence from this site is also unable to provide an unequivocal explanation with regards to the generation of a constructional sequence.

However the sheer size of the stones associated with the stone circle, 4.7m high in some cases, and their proximity to the outer lip of the henge ditch, which is only 6 meters, would suggest that had the henge been the primary construction then all the stones would have had to have been brought through the henge entrances and then erected from the centre outwards towards the henge ditch. Whereas had the stone circle been erected first the builders could have adopted a far more labour saving strategy of erecting the stones in the direction of travel as they approached the site. This theory, at present, cannot be proven due to the lack of intrusive investigations of the stone holes themselves.

Name **<u>The Sanctuary, Wiltshire</u>**

NGR SU118679

Description Setting of seven rings of timbers of varying sizes, the inner six forming cruciform corridors around a central post with a possible entrance being defined by two larger posts in the NW section. The rings of timbers were later replaced by two concentric rings of stones which may be contemporary with the West Kennet Avenue.

Dimensions **<u>Timber circles</u>;** (**m= diameter of circle). Ring A - 39.6m; unknown number of posts, Ring B – 20.2m; 34 posts; Ring C – 14.5m; 16 posts; Ring D – 10.5m; 12 posts; Ring E – 6.5m; 8 posts; Ring F – 4.2m; 8posts; Ring G – 4m; 8 posts. **<u>Stone circles</u>;** Ring A – 39.6m; 42 stones. Ring C – 14.5m; 16 stones.

Finds Sherds of Mortlake, Fengate and Grooved Ware from the lower fills of postholes of rings D, E and G. Of note are the quantities of Durrington Walls style Grooved Ware from post-holes 3, 7 and 10 of ring D recorded as being found in the post packing near the base of these posts. Sherds of Beaker pottery from the upper fills of the post-holes associated with the weathering of the decaying posts. Crouched burial of a juvenile associated with a BW Beaker which lay in a grave immediately adjacent to stone-hole C12.

Sequence **Timber Circles - Stone Circles.**

C14 Dates None.

Excavations Cunnington 1930.

References Cunnington 1931. Piggott 1940. Pollard 1992. Pitts 2001. Gibson 2005.

Discussion

Analysis of the previous attempts to interpret the site of the Sanctuary (Cunnington 1931, Piggott 1940, Musson 1971 and Pitts 2001) highlights the fact that formulating an acceptable sequence of development has proven problematic. This is largely a consequence of the fact that it is still unknown what form the timbers took above ground level; therefore theories that suggest a roofed structure will interpret the layout differently to those that suggest merely a series of upright posts. Nevertheless more recent analysis has highlighted evidence that has previously been overlooked that may enable the chronologies of this site to be more accurately established. This evidence comes in two forms, structural and artefactual. With regards to the structural evidence, perhaps the strongest argument for a single phase timber structure comes from analogy with contemporary monuments and from the coherence of plan seen in the post rings, which arguably would not exist had the site been the subject of several phases of reconstruction.

The inner 6 timber rings can clearly be divided into four symmetrical sections with equally spaced 'aisles'. This division occurs between the entrance post-holes 33 and 34 and runs through the central post-hole and along another axis through the centre at right-angles to this. The only issue with this theory is that ring G is eccentric to the other five rings. However the location of posts G3 & G6 suggest that ring G was in fact part of the initial layout of this site as these posts in particular block access into the centre of the monument. The restriction of access into the centre of similar monuments has been discussed in depth in a recent study by Gibson (2005). Parallels for the layout of this site which appear to support the idea that the timber rings were contemporary constructions can be observed at site IV at Mount Pleasant which is also laid out as a series of cruciform corridors (Wainwright 1979).

The artefactual evidence from the site also suggests that the rings of timbers were contemporary constructions. This is due to the fact that sherds of Mortlake, Fengate and Grooved Ware were recovered from the lower fills of the post-holes of rings D, E and G. Of note are the quantities of Durrington Walls style Grooved Ware from post-holes 3, 7 and 10 of ring D recorded as being found in the post packing near the base of these posts. When this is compared to the fact that only sherds of Beaker pottery were recovered from the upper fills of the post-pipe and the weathering cones it does indeed suggests that the 6 inner rings of timbers were contemporary constructions (Pollard 1992). The primacy of the timber circles over the two rings of stones can be proven by analysing the data from ring A and ring C.

During excavation it is clear that stone holes 7, 8 and 9 seal earlier post-holes relating to ring A. The relationship of the later stone ring A with the Avenue is seemingly quite clear with stones 1 and 42 being set radially to follow the alignment of the avenue. In comparison the close proximity of the stones and timbers of ring C has led some to suggest that these features were contemporary. However the findings of this study side in favour of the idea that this conformity was a direct result of the remains of the timber still being visible when the stone circle was erected (Gibson 2005). Of comparable importance is the single stone setting between rings B and C. This stone was bounded on the north-west and south-east by paired post-holes in a manner that suggests both stone and timbers were contemporary. A parallel for this has been observed at the site of Woodhenge where single stones were included in similar southern positions between posts B8 and 9 and probably between C5 and C6 (Cunnington 1929, 14).

Name **<u>Sarn-y-bryn-caled, Powys.</u>**

NGR SJ21903 491

Description Timber circle consisting of 20 posts that enclosed a small central inner circle of 6 posts that had two outlying timbers to the east.

Dimensions **<u>Timber circle</u>;** 20 posts, 17.5m in diameter. Post-holes; 1.15-1.95m in diameter and 1.2m deep. **<u>Orientation</u>;** Entrance denoted by two larger posts in the south. Central Feature: 6 posts, 3m in diameter. Post-holes 1.4-1.6m in diameter 1.3m deep. Two poster: D shaped post-holes 2.4m long 1m wide, 0.57 & 0.56m deep.

Finds Barbed and tanged arrow heads associated with the primary cremation. Food Vessel found in association with the secondary cremation.

Sequence **Timber Circle & Central Setting - Cremations (possibly contemporary with the timber circles) - Iron Age bronze working.**

C14 Dates **Outer circle;** Charcoal from the outer rings of post in post-hole 11 3720±40BP (BM-2808) & post-hole 12 3660±60BP (BM-2807) created by the charring of the post prior to it being inserted into the post-hole. **Inner setting;** Charcoal from outer growth rings of post F 3730±40BP (BM-2805) and E 3670±40BP (BM-2806). **Central pit; Primary cremation;** Oak charcoal 3900±40BP (BM-2809) associated with primary cremation. (BM-2809) was stratigraphically later than the central posts therefore this date should be regarded as anomalous. **Second cremation;** Oak charcoal from cremation deposit found above primary cremation (BM-2809) A 3660±40BP. Date is statistically agreeable with the post settings.

Excavations Gibson 1990-1992, site completely excavated.

References Gibson 1994.

Discussion

The evidence generated during the 1990-1992 excavations at the site of Sarn-y-bryn-caled clearly demonstrates that the outer ring of timbers and the inner arrangement of posts were contemporary constructions (Gibson 1994). This is due to the fact that firstly; the radiocarbon determinations from contexts associated with both the inner and outer circles are statistically identical and secondly; they can be considered largely reliable on account of the fact that the dated charcoal derives from the charred outer growth rings of the posts prior to them being inserted into the relevant post-holes *circa* 2000BC (Gibson 1994). The identification of the fact that the posts of Sarn-y-bryn-caled had been charred prior to being inserted into the post-holes is not only useful in determining the point in time at which the timber circle was erected, but also highlights the reality that this structure was intended to stand *in situ* for a prolonged period of time as arguably such effort would not have been taken to preserve the posts had this structure only been intended to be utilised for short episode of time.

It is also clear that the two central cremations discovered at this site were integral to the overall design of this monument. This is due to the fact that these cremations were placed in a pit that was excavated to the same depth as the inner circles post-ramps. This theory is not supported by the radiocarbon determination relating to a sample of oak charcoal found in association with the primary cremation (BM-2809) *circa* 2190-1926BC but is supported by the secondary cremation (BM-2809)A which is stratigraphically later than the primary cremation, but yet is statistically identical to the dates associated with the timber uprights (Gibson 1994, 154). It is clear that after this site had been abandoned and fallen into disrepair during the early Iron Age the central area was utilised as a location to undertake Bronze working. This activity can be proven on account of the fact that the upper sections of the weathering cone that sealed the earlier cremations was observed to have been the subject of severe heat and burning consistent with the production of bronze during the 1990-1992 excavations (Gibson 1994).

Name **<u>Street House, Cleveland</u>**

NGR NZ739139

Description Single oval of timber posts made up of four palisades set within a trench that had two opposing entrances and enclosed a central pit and two post structure.

Dimensions **<u>Timber oval</u>**; 9m in diameter.

Finds Collared Urns associated with later cremation burials.

Sequence **Agricultural activity - Four palisade trenches and central timber setting Timber structure dismantled & burnt - Palisade trench backfilled - Later Burial Activity.**

C14 Dates **<u>Timber palisade</u>;** (BM-2566) 3740 ± 100bc and (BM-2567) 3700 ± 100 bc Oak charcoal from the base of the post sockets believed to be from either the act of charring the outer surfaces of the posts or burning the posts to a desired size.

Excavations Vyner 1985-1986, site fully excavated.

References Vyner 1988.

Discussion

The scratch marks that were observed beneath the monument on the Prehistoric surface are believed to have been generated by ploughing and early agricultural activity. It has been postulated that this type of activity is a common precursor to monument construction at many sites. However it is arguably the case that clearings that had originally been used for agriculture would be adopted at a later date for a secondary purpose. Duly a timber structure comprising of 4 palisade trenches containing posts was erected around a central setting of two large posts and an encircling ring of clay with one entrance (Vyner 1988). It was suggested by Vyner that the timbers were removed at a later date as evidence was uncovered during excavation that demonstrated how the packing material was removed from around the timbers enabling them to be removed. It then seems likely that this material was placed back into the trench along with other filling material which may have coincided with the overall function of this monument changing. If the rotting timbers were still visible it may be the case that their removal coincided with the placement of the burials at the site that were uncovered during excavation. In the opinion of this study the proposed sequence for this site appears to be correct however its unusual construction makes its classification as a timber circle seem questionable.

Name **Strichen, Aberdeenshire**

NGR NJ9367 5447

Description Recumbent stone circle consisting of 14 stones that had monoliths set in a rubble bank and enclosed two stone lined graves. Enclosed within the stone circle were an earlier timber circle and a later roundhouse.

Dimensions **Stone circle;** 14 stones. **Orientation:** Recumbent stone positioned in the north of the circle. **Timber circle;** 9 outer posts surrounding 1 central post.

Finds Sherds of Beaker from the disturbed rubble bank, a second from close by outside the bank material and a third from a disturbed area beside the central grave (F23). 'Neolithic' pottery from the other grave (f19).

Sequence **Timber Circle - Stone Circle & Graves - Round House.**

C14 Dates **Stone circle;** 3390 ± 130BP (BM-2316R) bulk sample of *Alnus* charcoal from the base of pit dug into the rubble bank to house a cremation. (provides *terminus ante quem* for the construction of the bank in the Early Bronze Age. Second sample believed to be from same area 2650 ±160BP (HAR-4301) bulk sample of 'charcoal/soil'. **Wall trench of the round house;** Alnus charcoal from the base of the foundation trench 2460 ± 130BP (BM-2315R) & 2370 ± 130BP (BM-

2317R), dates could relate both to the initial construction or destruction of the site as a consequence of the fact that dates lie along the 'plateau' of the calibration curve.

Excavations Burl *et al.* 1979-1982.

References Phillips *et al*. 2006.

Discussion (**See Case Study No 13 for full discussion).**

Name <u>**The Stones of Stenness, Orkney**</u>

NGR HY3067 1252

Description Class I henge enclosing a circle of 12 large stone uprights. In the centre of the stone circle is a square setting of 4 stone blocks that surrounded a possible timber upright. In addition the henge encloses a series of pits, a possible fourpost structure and a three stone cove.

Dimensions <u>**Henge**</u>**;** Internal diameter, 44- 46m, ditch 2.3m deep 3.5 – 4m wide. Bank, 6.5m wide, surviving to a height of 0.4m high, Causeway 8m wide. <u>**Orientation**</u>**;** North facing entrance. <u>**Stone circle**</u>**;** 30m diameter. Square central setting, encloses an area of 2.1 –1.9m. <u>**Orientation**</u>**;** None observable. <u>**Central stone setting**</u>**;** 4 stones**.** <u>**Orientation**</u>**;** Square, non observable.

Finds Grooved Ware from the top of the primary silting layers of the henge ditch and the central stone setting.

Sequence **Stone Circle - Henge Monument - Central Stone Setting.**

C14 Dates <u>**Henge monument**</u>**;** 4306 ± 65BP (SRR-350) Animal bone from the base of the henge ditch, 4240 ± 45BP (OxA-9762) wolf bone from primary silt of henge ditch, 4425 ± 50BP (OxA-9763) Cattle hoof core from secondary fill of henge ditch, 4390 ± 50 (OxA-9764) Cattle radius, 4405±50BP (OxA-9765) cattle mandible and 4360 ± 40BP (OxA-9904), from upper silts of henge ditch.

<u>**Central stone setting**</u>**;** Unspecified charcoal sample and cremated bone (SRR351) 4190±110BP.

References Ritchie1976, 2000 & 2001. Richards 2004.

Discussion

(See case study No 12 for full discussion).

Name **<u>Temple Wood (North), Argyll</u>**

NGR NR 826 978

Description Timber circle with a central feature that was replaced by an uncompleted stone circle possibly of 16 stones. This was in turn replaced by a spread of pebbles and central recumbent stone.

Dimensions **<u>Stone circle;</u>** of up to 16 stones 10 x 10.5m in diameter, **<u>Timber circle</u>** 10.3m in diameter? Possibly made up of 16 posts?

Finds None.

Sequence **Timber circle - Partially completed Stone Circle - All structures removed, A Recumbent Stone Placed in the centre of the site and a spread of pebbles placed over the site to mark the extent of the original structures. Site replaced by southern circle?**

C14 Dates 5025 ± 190BP (GU-1296), Oak charcoal from stone-hole 8, which may be a piece of surviving heartwood from the earlier timber circle or residual material that has become incorporated into the stone hole.

Excavations Scott 1974-1980.

References Scott 1988, Gibson 2007.

Discussion (See case study No 14 for full discussion).

Name **<u>Temple Wood (South), Argyll</u>**

NGR NR 826 978

Description Free standing stone circle consisting of 22 stones 2 of which were decorated one was carved with a spiral and the other with ring ornament. The site was later modified with dry waling being placed between the uprights with an entrance in the east. The site was further modified by the introduction of cist burials, the insertion of upright interval slabs between the stone uprights and the construction of an outer bank of stones.

Dimensions **<u>Stone circle</u>;** 13.3 x 12.1m in diameter consisting of 22 stone slabs some of which measured 1.60m above the original ground level. Bank, 5m broad. 0.50m high. Central cist, 1.40m long, 0.81m wide and 0.60m deep.

Finds Late Northern Beaker recovered from burial B that was outside the main stone circle but sealed by material from the outer stone bank.

Sequence **Stone circle of 22 freestanding stones – Insertion of dry walling between the stones – Central cist and satellite burials within the stone circle – Dry stone wall removed and replaced by upright interval slabs between the stone uprights and across the entrance – Burial Cairns A & B - Construction of a surrounding bank - 19th C drainage ditch.**

C14 Dates **Stone circle;** 3045 ± 110BP (GU-1527), oak and hazel charcoal also from old land surface within stone circle, (GU-1528), 2945 ± 65BP oak charcoal from upper old ground surface. Burial D, 2980 ± 100BP (GU-1045), charcoal from beneath outer edge of slab capping cist, (GU-1297) 3040 ± 55BP, oak charcoal sealed beneath outer edge of slab capping bordering central cist. Burial E, (GU-1300), 3225 ± 105BP oak charcoal sealed below cairn material that overlaid pit cremation, 3085 ± 80BP (GU-1529) Alder charcoal from possible stake-hole associated with burial E, (GU-1299), 2970 ± 230BP, alder and hazel charcoal associated with cremation E, 2945 ± 215BP (GU-1298) alder charcoal from possible stake in stone-hole of lower kerb of burial E. 215 ± 80BP (GU-1530) Juniper twig and pine charcoal from stone bank surrounding stone circle from a deposit that marked and sealed the top of cairn of burial B.

Excavations Scott 1974-1980.

References Scott 1998-9. Gibson 2007.

Discussion

Excavations at this site were not able to conclusively prove that the southern circle was constructed as a replacement for the seemingly earlier Northern circle. However they were able to prove that the southern circle had a complex history of its own that did in fact possess many of the architectural traits that are often associated with a later period in history than those witnessed at the northern circle. For example the stone circle was originally planned as an isolated monument that conforms to Burl's definition of a stone circle (Burl 1977, 8). This implies that unlike the northern circle the southern circle was originally planned to take the form of a stone circle. Despite the reality that this site was associated with several burial cists, one of which was proven to have been associated with the Beaker tradition, the lack of datable evidence relating to the stone-holes themselves makes it is impossible to determine at what point in time this site was actually constructed. At best the radiocarbon dates from this site can provide a *terminus post or ante quem* for the construction of the stone circle as they derive from unrelated contexts such as the old land surface and later burials.

The secondary alterations that took place at this site suggest that its original function may have changed. The original lay out of the stone circle was ultimately respected, however dry stonewalling was inserted between the stone uprights and an entrance was created in the east. This in turn was removed and replaced by slabs placed on their long axis between the uprights of the stone circle and across the earlier created entrance. In addition a bank made up of stones, boulders and slabs was created that enclosed the stone circle (Scott 1998). It is unclear at what point within these alterations the Kerb-cairns and burials were added to the centre of the monument, however it is reasonable to assume that this happened after the stone circle had become a place were burials were interned. This is seemingly proven by the fact that Burial B, which was located outside the stone circle and bank, was sealed by a layer of material that was related to the later alteration of the surrounding bank and not its initial erection. The fact that burial B had an accompanying Later Northern Beaker would suggest that the stone circle was constructed prior to the introduction of this form of ceramic, however by how many years is unknown.

Name **<u>Thornborough North, North Yorkshire</u>**

NGR SE 281 801

Description Class IIA henge monument with both an inner and outer bank and ditches which are separated by berms. The henge is located in close proximity to two identical henges that may have formed one part of a planned monumental complex.

Dimensions **Henge;** Internal diameter 250m, bank 17.5m wide, 1.5m high, inner berm 12m wide, inner ditch 20.4m wide, 2.5m deep, both entrances 12.1m wide. **Orientation;** opposing south-east and north west entrances.

Finds None.

Sequence **Isolated Henge.**

C14 Dates None.

Excavations Thomas 1952, 2 trial pits dug into the inner ditch.

References Thomas 1952, Harding 2003.

Discussion **(See Thornborough Centre for full discussion).**

Name **Thornborough South, North Yorkshire**

NGR SE 290 789.

Description Class IIA henge monument with both inner and outer banks and ditches which are separated by berms. The henge is located in close proximity to two identical henges that may have formed one part of a planned monumental complex.

Dimensions **Henge;** Internal diameter 250m, outer ditch, 0.6m deep and 2.5m wide, Bank 20m wide, 1.8m high, internal ditch 2.6m deep and 15.8m wide, both entrances 15m wide. **Orientation;** opposing south-east and north west entrances.

Finds None.

Sequence **Isolated Henge.**

C14 Dates **Henge;** 3350 ± 50BP (Beta- 143015), Oak charcoal from the top of the primary fill of the inner henge ditch.

Excavations Thomas 1952. Harding 1995 and 1997, trench across the outer and inner ditch.

References Harding 2003.

Discussion **(See Thornborough Centre for full discussion).**

Name **<u>Thornborough Centre, North Yorkshire</u>**

NGR SE 285 795.

Description Class IIA henge monument with both inner and outer banks and ditches which are separated by berms. The henge is located in close proximity to two identical henges and may have formed one part of a planned monumental complex. The henge was built directly over a pre-existing cursus monument that had silted up prior to the construction of the henge.

Dimensions **<u>Henge</u>;** Internal diameter 250m, external ditch 6m wide, 1.3m deep, inner bank 18m wide, 4.5m high. Internal ditch 17.6m wide, 2.1m deep. Both entrances 16.2m wide. **<u>Orientation</u>;** opposing south-east and north west entrances. **<u>Cursus</u>;** 1.1km long and 44m wide.

Finds None.

Sequence **Cursus Monument - Henge.**

C14 Dates None.

Excavations Thomas 1952, South-West end of inner ditch, section of bank, 2 sections across the northern ditch of cursus, small trench in the interior. Harding 1998, trench across the outer henge ditch exposing outer ditch and bank.

References Thomas 1952. Harding 2003.

Discussion

The fact that all three henge monuments at Thornborough share the same north-west/southeast alignment within an observable distance of just under a mile and the fact that they all display similar structural traits suggests that these three monuments were in fact contemporary constructions (Harding 2003, 91-92). Indeed it has been suggested that the layout of these three henges was pre-determined to mirror the appearance of Orion's belt. However a lack of datable materials from reliable contexts relating to the initial construction of the henge monuments makes proving such a theory impossible. It is clear that the cursus monument preceded the building of the central henge. The construction of these two structures seems likely to have been separated by a prolonged period of time as the ditches associated with the cursus monument had silted up prior to the construction of the henge;

however it is impossible to determine whether the cursus predated the northern and southern henges also.

It is reasonable to suggest that the three henges appear to have been the subject of a gradual project of construction. Evidence for such a hypothesis comes in the form of the fact that the outer ditch of the southern henge appears to have been recut after it had more or less fully silted with the initial ditch being replaced with a narrower one on the western side of the original feature and the spoil from this excavation being used to expand the existing bank and close off a section of the entrance causeway. This suggests that the original function of the southern henge in particular may have changed or that as time elapsed between its initial construction and the completion of the northern and central circles the appearance may have needed to be changed to reflect alterations made during the construction of the other two monuments.

Name **Whitton Hill, Northumberland**

NGR NT9334 3460

Description Mini henge whose circumference was broken by four causeways. Within the henge laid a ring of pits that appear to have held a series of posts that in turn enclosed a central cremation of a child.

Dimensions **Henge;** Internal diameter,10.3m, ditch 2m wide 1.2m deep. **Timber circle;** 21 posts.

Finds Sherds of Grooved Ware from the early fills of the henge ditch. Heavyrimmed cremation vessel from central pit.

Sequence **Timber Circle - Henge Monument.**

C14 Dates **Henge;** Timber charcoal from upper fill of the henge ditch (BM-2265) 3660 ± 80BP and (BM-2266) 3660 ± 50BP found in association with sherds of Grooved Ware.

Excavations Miket 1982, half the interior excavated including several pits, sections of the ditch and a large area outside the monument itself.

References Miket 1985.

Discussion

In the opinion of this study it is unclear whether the site of Whitton Hill I should actually be considered a henge monument or not owing to the reality that the earthen sections of this structure portrays the characteristics of a segmented ring ditch rather than those of a henge. What is more certain is that the ring of timbers appears to have been the primary construction at this site. For while the post circle sits comfortably within the ring ditch the denoted entrance of this structure (between posts 8 & 23 or 8 & 6 depending upon how you interpret the data) does not align with any of the entrances associated with the encircling ring ditch. Therefore it appears more likely that the timber circle stood in isolation for a period of time before being enclosed by a later ring ditch. This structure was then reused as a cremation cemetery with similar funerary structures being constructed in the immediate area around Whitton Hill I.

Name **<u>Woodhenge, Wiltshire</u>**

NGR SU 150 434.

Description Class I henge monument with an internal berm that enclosed an earlier setting of six concentric rings of timbers of varying sizes that may or may not have been contemporary with each other.

Dimensions **<u>Henge</u>;** 46-48.5m in diameter, ditch 9-12m wide. **<u>Orientation</u>;** North-north eastern facing entrance. **<u>Timber circles</u>;** Ring A – 60posts 44m in diameter, Ring B – 34 posts 38m in diameter, Ring C – 16 posts 29m in diameter, Ring D – 19 posts 23.5m in diameter, Ring E – 18 posts 17.5m in diameter, Ring F – 12 posts 11.7m in diameter.

Finds Sherds of Grooved Ware and two transverse arrowheads were recovered from the primary silts of the henge ditch. Grooved Ware was also recovered from the old land surface that was sealed beneath the henge bank and from several post-holes.

Sequence **Rings D, E & F - Ring C & B – Ring A – Henge – Stone Cove**

C14 Dates 3817 ± 74BP (BM-677) antler pick from the base of henge ditch in the south-west sector. 3755 ± 54BP (BM-678) animal bone from the primary rock fill of the ditch in the south-west sector.

Excavations Cunnington 1926-1928. Wainwright 1970-1971.

References Cunnington 1929. Piggott 1939. Wainwright & Evans 1979. Pollard 1995. Pollard & Robinson 2007.

Discussion (**See Case Study No 15 for full discussion).**

Name **<u>Wyke Down, Dorset</u>**

NGR SU 0066 1529

Description Class I pit-circle henge defined by a ring of twenty-six chalk cut pits and an outer bank made up of the spoil from the excavated pits. The ring of pits enclosed a much shallower central pit.

Dimensions <u>Henge;</u> Internal diameter 17-19.5m, entrance 3m wide, bank, 2m outside pits and remained to a height of 0.60m, outer pits 1.05-2m deep, central pit 0.52m deep

Finds Pieces of carved chalk and numerous animal bones were recovered from the primary silts of the pits, while the fill of the secondary recuts contained sherds of Grooved Ware. Sherds of Late-Style Beaker and collared Urn found towards the rear of the enclosure.

Sequence **Class I pit - circle henge - several recuts made into existing pits and the excavation of the central pit.**

C14 Dates 4040 ± 90BP (BM-2395) red deer antler from the primary silt of Pit I.

Charcoal of oak heart wood from the recut feature in pit I, likely to be effected by old wood effect, 4140± 80BP: (BM-2396). Mixed charcoal sample of three species (alder over ten years old, hazel over ten years old, and blackthorn up to 25 years old), taken from the recut in the filling of Pit K, 4150 ± 50BP (BM2397). 3460 ± 90BP (BM-2394) animal bone from the lower filling of the central pit. This date is contemporary with that of a near by barrow cemetery and thus is suggested as being a later addition to the henge.

Excavations Green 1983.

References Barrett, Bradley & Green 1991.

Discussion

Interpretation of the constructed features at Wyke down appears on first inspection to be relatively straightforward. Archaeological investigation of this site has indeed been able to prove that initially a pit-circle henge consisting of twenty-six pits with an external bank was the first construction on this site. This structure was subsequently altered at a later date by the excavation of pockets into the fill of the original pits for the purposes of structured deposition and possible funerary practises. However the period of time that elapsed between these two phases of activity is more difficult to calculate. This is due to the reality that only one of the radiocarbon dates (BM-2395) can be considered as being from a reliable stratigraphic context. The presence of Grooved Ware in the secondary re-cuts of the pits suggests that the initial construction of the henge may have pre-dated the introduction of this ceramic form. Such a theory is supported by the fact that the primary pits associated with the construction of the henge were devoid of any ceramic assemblage.

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